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(FILE 'HOME' ENTERED AT 14:21:54 ON 19 APR 2004)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 14:22:21 ON 19 APR 2004
E ROSEN C/AU
L1 27 S E3,E4
E ROSEN CRAIG/AU
L2 630 S E3-E5
E HASELTINE W/AU
L3 303 S E3,E4,E7-E10
E HUMAN GENOME/PA,CS
E HUMAN GENOME SCI/PA,CS
L4 985 S E4-E38
L5 159089 S ?ALBUMIN?
E ALBUMIN/CT
L6 753 S E3
L7 132 S E11
L8 70035 S E47
L9 1 S E48
E E47+ALL
L10 80984 S E2+NT
E E33+ALL
L11 275 S E3
L12 295 S E2
E ALBUMIN/CW
L13 1282 S E3,E8,E9
L14 159109 S L5-L13
L15 2654 S HER2 OR HER 2
E HER/CT
L16 15 S L14 AND L15
L17 1 S L16 AND BINDING PEPTIDE
L18 4 S L16 AND (FUSION OR FUSE OR FUSING OR CHIMER?)
L19 1 S L17 AND L18
E FUSION/CT
L20 5525 S E3
L21 3902 S E10+NT OR E11+NT
L22 12703 S E30+NT
E E30+ALL
L23 3855 S E3,E4
E E11+ALL
L24 76522 S E8+NT
E E8+ALL
L25 89216 S E2+NT
L26 1 S L16 AND L20-L25
L27 1 S L19,L26
L28 0 S L1-L4 AND L16
L29 0 S L1-L4 AND L15
L30 27 S L1-L4 AND L14
SEL DN AN 3 4 6 19-24
L31 9 S L30 AND E1-E27
L32 22 S L30 AND L20-L25
L33 25 S L30 AND (FUSION OR FUSE OR FUSING OR CHIMER?)
L34 9 S L32,L33 AND L31
L35 10 S L27,L34
L36 17 S L32,L33 NOT L35

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 14:34:04 ON 19 APR 2004
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FILE COVERS 1907 - 19 Apr 2004 VOL 140 ISS 17
 FILE LAST UPDATED: 18 Apr 2004 (20040418/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L35 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2004:3460 HCAPLUS
 DN 140:71000
 ED Entered STN: 04 Jan 2004
 TI Serum **albumin binding peptides** for tumor targeting
 IN Dennis, Mark S.
 PA USA
 SO U.S. Pat. Appl. Publ., 44 pp.
 CODEN: USXXXCO
 DT Patent
 LA English
 IC ICM A61K039-395
 NCL 424144100; 424145100
 CC 1-6 (Pharmacology)
 Section cross-reference(s): 9, 63

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004001827	A1	20040101	US 2002-186229	20020628
PRAI US 2002-186229				
OS MARPAT 140:71000				

AB Peptide ligands having affinity for serum **albumin** are useful for tumor targeting. Conjugate mols. comprising a serum **albumin binding peptide** fused to a biol. active mol. demonstrate modified pharmacokinetic properties as compared with the biol. active mol. alone, including tissue (e.g., tumor) uptake, infiltration, and diffusion. Nude mice bearing HER2-pos. tumors were administered equivalent doses of the 4D5 (IgG), 4D5-H (Fab **fusion protein** with **albumin binding peptide** SA06), and the Fab fragment. The normalized plasma concentration of the **fusion protein** was sustained over time as compared with that of the Fab. Tumors were stained within two hours with the 4D5-H treated animals, with diffuse staining through the tumor present at 24 h post administration.

ST serum **albumin binding peptide** tumor targeting; antibody fragment **fusion albumin binding peptide** tumor targeting

IT Diagnosis
 (agents, conjugates with peptide; serum **albumin binding peptides** for tumor targeting)

IT Structure-activity relationship
 (**albumin-binding**; serum **albumin binding**)

bad date

peptides for tumor targeting)

IT pH
(and peptide-serum albumin binding response; serum albumin binding peptides for tumor targeting)

IT CD20 (antigen)
CD40 (antigen)
Epidermal growth factor receptors
neu (receptor)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(antibodies to, conjugates; serum albumin binding peptides for tumor targeting)

IT Diagnosis
(cancer; serum albumin binding peptides for tumor targeting)

IT Drug delivery systems
(carriers; serum albumin binding peptides for tumor targeting)

IT Drugs

Tracers
(conjugates with peptide; serum albumin binding peptides for tumor targeting)

IT Antibodies
Peptides, biological studies
Proteins
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(conjugates; serum albumin binding peptides for tumor targeting)

IT Antibodies
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation)
(diabodies to HER2, fusion proteins with SA06
albumin binding peptide; serum albumin binding peptides for tumor targeting)

IT Biological transport
(diffusion; serum albumin binding peptides for tumor targeting)

IT Immunoglobulins
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fragments, conjugates; serum albumin binding peptides for tumor targeting)

IT Drug delivery systems
(inhalants; serum albumin binding peptides for tumor targeting)

IT Drug delivery systems
(injections; serum albumin binding peptides for tumor targeting)

IT Biological transport
(intracellular; serum albumin binding peptides for tumor targeting)

IT Proteins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation)
(major coat, P8, phage libraries expressing random peptide sequences fused to; serum albumin binding peptides for tumor targeting)

IT Drug delivery systems
(nasal; serum albumin binding peptides)

for tumor targeting)

IT Affinity
(of peptides for serum **albumin**; serum **albumin binding peptides** for tumor targeting)

IT Drug delivery systems
(oral; serum **albumin binding peptides** for tumor targeting)

IT Human
(peptide binding to serum **albumin** of; serum **albumin binding peptides** for tumor targeting)

IT Ligands
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(peptide, binding serum **albumin**; serum **albumin binding peptides** for tumor targeting)

IT Molecules
(serum **albumin binding peptide** fused with
biol. active; serum **albumin binding peptides** for tumor targeting)

IT Animal tissue
Antitumor agents
Cattle
Diagnosis
Drug delivery systems
Macaca mulatta
Mouse
Neoplasm
Peptide library
Phage display library
Pharmacokinetics
Protein sequences
Rabbit
Rat
(serum **albumin binding peptides** for tumor targeting)

IT **Fusion proteins (chimeric proteins)**
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PKT (Pharmacokinetics); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(serum **albumin binding peptides** for tumor targeting)

IT Receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(serum **albumin binding peptides** for tumor targeting)

IT Peptides, biological studies
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PKT (Pharmacokinetics); THU (Therapeutic use);
BIOL (Biological study); USES (Uses)
(serum **albumin binding peptides** for tumor targeting)

IT **Albumins, biological studies**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(serum; serum **albumin binding peptides** for tumor targeting)

IT Biological transport
(uptake; serum **albumin binding peptides** for tumor targeting)

IT 641653-48-7
RL: PRP (Properties)
(Unclaimed; serum **albumin binding peptides** for tumor targeting)

IT 503598-21-8 641625-59-4 641625-60-7
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
 (affinity for serum albumin; serum albumin binding peptides for tumor targeting)

IT 127464-60-2, Vascular endothelial growth factor
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (antibodies to, conjugates; serum albumin binding peptides for tumor targeting)

IT 206750-67-6
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
 (as linker between peptide ligand and active domain; serum albumin binding peptides for tumor targeting)

IT 503598-14-9P
 RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PKT (Pharmacokinetics); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (peptide binding serum albumin from multiple species; serum albumin binding peptides for tumor targeting)

IT 503598-18-3P 503598-75-2P 641625-51-6P 641625-52-7P 641625-53-8P
 641625-54-9P 641625-55-0P 641625-56-1P 641625-57-2P 641625-58-3P
 RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (peptide binding serum albumin from multiple species; serum albumin binding peptides for tumor targeting)

IT 9035-58-9, Blood-coagulation factor III
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (peptide fusion proteins with Fab fragment binding to; serum albumin binding peptides for tumor targeting)

IT 641621-55-8 641641-30-7
 RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (serum albumin binding peptide containing; serum albumin binding peptides for tumor targeting)

IT 641621-56-9 641621-57-0 641621-58-1 641621-59-2 641621-60-5
 641621-61-6 641621-62-7 641621-63-8 641621-64-9 641621-65-0
 641621-66-1 641621-67-2 641621-68-3 641621-69-4 641621-70-7
 641621-71-8 641621-72-9 641621-73-0 641621-74-1 641621-75-2
 641621-76-3 641621-77-4 641621-78-5 641621-79-6 641621-80-9
 641621-81-0 641621-82-1 641621-83-2 641621-84-3 641621-85-4
 641621-87-6 641621-88-7 641621-90-1 641621-92-3 641621-93-4
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 641622-02-8 641622-03-9 641622-04-0 641622-05-1 641622-06-2
 641622-07-3 641622-08-4 641622-09-5 641622-10-8 641622-11-9
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 641622-37-9 641622-38-0 641622-39-1 641622-40-4 641622-41-5
 641622-43-7 641622-45-9 641622-47-1 641622-49-3 641622-50-6
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641622-76-6	641622-77-7	641622-78-8	641622-79-9	641622-80-2
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641622-91-5	641622-92-6	641622-93-7	641622-94-8	641622-95-9
641622-96-0	641622-97-1	641622-98-2	641622-99-3	641623-00-9
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RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(serum albumin binding peptide; serum albumin binding peptides for tumor targeting)

IT	641624-00-2	641624-01-3	641624-02-4	641624-03-5	641624-04-6
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	641624-70-6	641624-71-7	641624-72-8	641624-73-9	641624-74-0
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	641624-80-8	641624-81-9	641624-82-0	641624-83-1	641624-84-2
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 641625-45-8 641625-46-9 641625-47-0 641625-48-1 641625-49-2
 641625-50-5

RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (serum albumin binding peptide; serum albumin binding peptides for tumor targeting)

IT 503598-11-6 503598-23-0 503598-30-9 503598-34-3 503598-38-7
 503598-41-2 503598-45-6 503598-48-9 503598-56-9 503598-60-5
 503598-67-2 503598-70-7 503598-71-8 503598-79-6 503598-83-2
 503598-87-6 503598-91-2 641625-61-8 641625-62-9

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(serum albumin binding response to; serum albumin binding peptides for tumor targeting)

IT 641653-35-2 641653-36-3 641653-37-4 641653-39-6 641653-40-9
 641653-41-0 641653-42-1 641653-43-2 641653-44-3 641653-45-4
 641653-46-5 641653-47-6 641653-49-8

RL: PRP (Properties)
 (unclaimed protein sequence; serum albumin binding peptides for tumor targeting)

IT 641653-38-5 641665-57-8 641665-58-9

RL: PRP (Properties)
 (unclaimed sequence; serum albumin binding peptides for tumor targeting)

L35 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:571103 HCAPLUS

DN 139:122690

ED Entered STN: 25 Jul 2003

TI Albumin fusion proteins for prolonged shelf-life of therapeutic proteins

IN Ballance, David James; Turner, Andrew John; Rosen, Craig A.; Haseltine, William A.

PA Human Genome Sciences, Inc., USA; Delta Biotechnology Limited; Principia Pharmaceutical Corporation

SO PCT Int. Appl., 598 pp.
 CODEN: PIXXD2

DT Patent

LA English

IC ICM C12N

CC 63-3 (Pharmaceuticals)

Section cross-reference(s): 3

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2003060071	A2	20030724	WO 2002-US40891	20021223
	WO 2003060071	A3	20040226		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-341811P P 20011221
 US 2002-350358P P 20020124
 US 2002-351360P P 20020128

David date

US 2002-359370P	P	20020226
US 2002-360000P	P	20020228
US 2002-367500P	P	20020327
US 2002-370227P	P	20020408
US 2002-378950P	P	20020510
US 2002-382617P	P	20020524
US 2002-383123P	P	20020528
US 2002-385708P	P	20020605
US 2002-394625P	P	20020710
US 2002-398008P	P	20020724
US 2002-402131P	P	20020809
US 2002-402708P	P	20020813
US 2002-411355P	P	20020918
US 2002-411426P	P	20020918
US 2002-414984P	P	20021002
US 2002-417611P	P	20021011
US 2002-420246P	P	20021023
US 2002-423623P	P	20021105

AB The present invention encompasses **albumin fusion** proteins. Many therapeutic proteins in their native state or when recombinantly produced are typically labile mols. exhibiting short shelf-lives, particularly when formulated in aqueous solns.; **fusions** of the therapeutic protein with human serum **albumin** have a longer serum half-life and/or stabilized activity in solution (or in a pharmaceutical composition) in vitro and/or in vivo than the corresponding unfused therapeutic mols. Thus, **albumin fusion** proteins are provided comprising granulocyte colony-stimulating factor, interleukin 2, parathormone, erythropoietin, interferon β , interferon $\alpha 2$, interferon A/D hybrid, a single-chain insulin analog, growth hormone, and (7-36)GLP-1. Nucleic acid mols. encoding the **albumin fusion** proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the **albumin fusion** proteins of the invention and using these nucleic acids, vectors, and/or host cells. Addnl. the present invention encompasses pharmaceutical compns. comprising **albumin fusion** proteins and methods of treating or preventing diseases, disorders or conditions related to diabetes mellitus using **albumin fusion** proteins of the invention.

ST **albumin fusion** therapeutic protein shelflife

IT Animal cell line

(293, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Animal cell line

(CHO, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Animal cell line

(NSO, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Proteins

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antiviral, T1249 peptide inhibitor derived from HIV-1; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Antidiabetic agents

Human

Linking agents

Molecular cloning

(human serum **albumin fusion** proteins for prolonged

IT shelf-life of therapeutic proteins
IT **Fusion proteins (chimeric proteins)**
IT Interleukin 2
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Signal peptides
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Animal cell
 (mammalian, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Diabetes mellitus
 (non-insulin-dependent, treatment of; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Protein sequences
 (of human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Plasmid vectors
 (pC4; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Plasmid vectors
 (pEE12.1; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Plasmid vectors
 (pSAC35; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT **Saccharomyces cerevisiae**
Yeast
 (recombinant expression host that is glycosylation and protease-deficient; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT **Albumins, biological studies**
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (serum; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Interferons
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α 2; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Interferons
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Interferons
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α AD; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)
IT Interferons

RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(β ; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT 562119-52-2P 562119-53-3P 562119-54-4P 562119-55-5P 562119-56-6P
 562119-57-7P 562119-58-8P 562119-59-9P 562119-60-2P 562119-61-3P
 562119-62-4P 562119-63-5P 562119-64-6P 562119-65-7P 562119-66-8P
 562119-67-9P 562119-68-0P 562119-69-1P 562119-70-4P 562119-71-5P
 562119-72-6P 562119-73-7P 562119-74-8P 562119-75-9P 562119-76-0P
 562119-77-1P 562119-78-2P 562119-79-3P 562119-80-6P 562119-81-7P
 562119-82-8P 562119-83-9P 562119-85-1DP, **Albumin** (human), subfragments, **fusion** products

RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(amino acid sequence; human serum **albumin fusion**

proteins for prolonged shelf-life of therapeutic proteins)

IT 9002-64-6P, Parathormone 9004-10-8P, Insulin, biological studies
 11096-26-7P, Erythropoietin 89750-14-1P, Glucagon-like peptide I
 143011-72-7P, Granulocyte colony-stimulating factor

RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT 562119-84-0

RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)

(nucleotide sequence; human serum **albumin fusion**

proteins for prolonged shelf-life of therapeutic proteins)

IT 562125-97-7 562125-98-8 562125-99-9 562126-00-5 562126-01-6
 562126-02-7 562126-03-8 562126-04-9 562126-05-0 562126-06-1
 562126-07-2 562126-08-3 562126-09-4 562126-10-7 562126-11-8
 562126-12-9 562126-13-0 562126-14-1 562126-15-2 562126-16-3
 562126-17-4 562126-18-5 562126-19-6 562126-20-9 562126-21-0
 562126-22-1 562126-23-2 562126-24-3 562126-25-4 562126-26-5
 562126-27-6 562126-28-7 562126-29-8 562126-30-1 562126-31-2
 562126-32-3 562126-33-4 562126-34-5 562126-35-6 562126-36-7
 562126-37-8 562126-38-9 562126-39-0 562126-40-3 562126-41-4
 562126-42-5 562126-43-6 562126-44-7 562126-45-8 562126-46-9
 562126-47-0 562126-48-1 562126-49-2 562126-50-5 562126-51-6
 562126-52-7 562126-53-8 562126-54-9 562126-55-0 562126-56-1
 562126-57-2 562126-58-3 562126-59-4 562126-60-7 562126-61-8
 562126-62-9 562126-63-0 562126-64-1 562126-65-2 562126-66-3
 562126-67-4 562126-68-5 562126-69-6 562126-70-9 562126-71-0
 562126-72-1 562126-73-2 562126-74-3 562126-75-4 562126-76-5
 562126-77-6 562126-78-7 562126-79-8 562126-80-1 562126-81-2
 562126-82-3 562126-83-4 562126-84-5 562126-85-6 562126-86-7
 562128-87-4 562128-88-5 562128-89-6 562128-90-9 562128-91-0
 562128-92-1 562128-93-2 562128-94-3 562128-95-4 562128-96-5
 562128-97-6 562128-98-7 562128-99-8 562129-00-4 562129-01-5
 562129-02-6 562129-03-7 562129-04-8 562129-05-9 562129-06-0
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 562129-12-8 562129-13-9 562129-14-0 562129-15-1 562129-16-2
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 562129-37-7 562129-38-8 562129-39-9 562129-40-2 562129-41-3
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 562129-47-9 562129-48-0 562129-49-1 562129-50-4 562129-51-5
 562129-52-6 562129-53-7 562129-54-8 562129-55-9 562129-56-0

562129-57-1	562129-58-2	562129-59-3	562129-60-6	562129-61-7
562129-62-8	562129-63-9	562129-64-0	562129-65-1	562129-66-2
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562129-72-0	562129-73-1	562129-74-2	562129-75-3	562129-76-4
562129-77-5	562129-78-6	562129-79-7	562129-80-0	562129-81-1
562129-82-2	562129-83-3	562129-84-4	562129-85-5	562129-86-6
562129-87-7	562129-88-8	562129-89-9	562129-90-2	562129-91-3
562129-92-4	562129-93-5	562129-94-6	562129-95-7	562129-96-8
562129-97-9	562129-98-0	562129-99-1	562130-00-1	562130-01-2
562130-02-3	562130-03-4	562130-04-5	562130-05-6	562130-06-7
562130-07-8	562130-08-9	562130-09-0	562130-10-3	562130-11-4
562130-12-5	562130-13-6	562130-14-7	562130-15-8	562130-16-9
562130-17-0	562130-18-1	562130-19-2	562130-20-5	562130-21-6
562130-22-7	562130-23-8	562130-24-9	562130-25-0	562130-26-1
562130-27-2	562130-28-3	562130-29-4	562130-30-7	562130-31-8
562130-32-9	562130-33-0	562130-34-1	562130-35-2	562130-36-3

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**)

proteins for prolonged shelf-life of therapeutic proteins)

IT	562130-37-4	562130-38-5	562130-39-6	562130-40-9	562130-41-0
	562130-42-1	562130-43-2	562130-44-3	562130-45-4	562130-46-5
	562130-47-6	562130-48-7	562130-49-8	562130-50-1	562130-51-2
	562130-52-3	562130-53-4	562130-54-5	562130-55-6	562130-56-7
	562130-57-8	562130-58-9	562130-59-0	562130-60-3	562130-61-4
	562130-62-5	562130-63-6	562130-64-7	562130-65-8	562130-66-9
	562130-67-0	562130-68-1	562130-69-2	562130-70-5	562130-71-6
	562130-72-7	562130-73-8	562130-74-9	562130-75-0	562130-76-1
	562130-77-2	562130-78-3	562130-79-4	562130-80-7	562130-81-8
	562130-82-9	562130-83-0	562130-84-1	562130-85-2	562130-86-3
	562130-87-4	562130-88-5	562130-89-6	562130-90-9	562130-91-0
	562130-92-1	562130-93-2	562130-94-3	562130-95-4	562130-96-5
	562130-97-6	562130-98-7	562130-99-8	562131-00-4	562131-01-5
	562131-02-6	562131-03-7	562131-04-8	562131-05-9	562131-06-0
	562131-07-1	562131-08-2	562131-09-3	562131-10-6	562131-11-7
	562131-12-8	562131-13-9	562131-14-0	562131-15-1	562131-16-2
	562131-17-3	562131-18-4	562131-19-5	562131-20-8	562131-21-9
	562131-22-0	562131-23-1	562131-24-2	562131-25-3	562131-26-4
	562131-27-5	562131-28-6	562131-29-7	562131-30-0	562131-31-1
	562131-32-2	562131-33-3	562131-34-4	562131-35-5	562131-36-6
	562131-37-7	562131-38-8	562131-39-9	562131-40-2	562131-41-3
	562131-42-4	562131-43-5	562131-44-6	562131-45-7	562131-46-8
	562131-47-9	562131-48-0	562131-49-1	562131-50-4	562131-51-5
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	562131-57-1	562131-58-2	562131-59-3	562131-60-6	562131-61-7
	562131-62-8	562131-63-9	562131-64-0	562131-65-1	562131-66-2
	562131-67-3	562131-68-4	562131-69-5	562131-70-8	562131-71-9
	562131-72-0	562131-73-1	562131-74-2	562131-75-3	562131-76-4
	562131-77-5	562131-78-6	562131-79-7	562131-80-0	562131-81-1
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	562131-92-4	562131-93-5	562131-94-6	562131-95-7	562131-96-8
	562131-97-9	562131-98-0	562131-99-1	562132-00-7	562132-01-8
	562132-02-9	562132-03-0	562132-04-1	562132-05-2	562132-06-3
	562132-07-4	562132-08-5	562132-09-6	562132-10-9	562132-11-0
	562132-12-1	562132-13-2	562132-14-3	562132-15-4	562132-16-5
	562132-17-6	562132-18-7	562132-19-8	562132-20-1	562132-21-2
	562132-22-3	562132-23-4	562132-24-5	562132-25-6	562132-26-7
	562132-27-8	562132-28-9	562132-29-0	562132-30-3	562132-32-5
	562132-34-7	562132-36-9	562132-37-0	562132-39-2	562132-40-5
	562132-41-6	562132-42-7	562132-43-8	562132-44-9	562132-45-0
	562132-46-1	562132-47-2	562132-48-3	562132-49-4	562132-50-7
	562132-51-8	562132-52-9	562132-53-0	562132-54-1	562132-56-3
	562132-58-5	562132-60-9	562132-62-1	562132-64-3	562132-66-5

562132-68-7	562132-70-1	562132-72-3	562132-74-5	562132-76-7
562132-78-9	562132-80-3	562132-82-5	562132-85-8	562132-87-0
562132-89-2	562132-90-5	562132-91-6	562132-92-7	562132-93-8
562132-94-9	562132-95-0	562132-96-1	562132-98-3	562133-00-0

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**
proteins for prolonged shelf-life of therapeutic proteins)

IT	562133-02-2	562133-03-3	562133-04-4	562133-05-5	562133-06-6
	562133-07-7	562133-08-8	562133-09-9	562133-21-5	562133-22-6
	562133-23-7	562133-24-8	562133-25-9	562133-26-0	562133-27-1
	562133-28-2	562133-29-3	562133-30-6	562133-31-7	562133-33-9
	562133-35-1	562133-36-2	562133-37-3	562133-39-5	562133-40-8
	562133-42-0	562133-44-2	562133-45-3	562133-47-5	562133-49-7
	562133-50-0	562133-53-3	562133-56-6	562133-58-8	562133-59-9
	562133-61-3	562133-63-5	562133-66-8	562133-69-1	562133-70-4
	562133-72-6	562133-74-8	562133-75-9	562133-76-0	562133-77-1
	562133-78-2	562133-79-3	562133-80-6	562133-81-7	562133-82-8
	562133-83-9	562133-84-0	562133-85-1	562133-86-2	562133-87-3
	562133-88-4	562133-89-5	562133-90-8	562133-91-9	562133-92-0
	562133-93-1	562133-94-2	562133-95-3	562133-96-4	562133-97-5
	562133-98-6	562133-99-7	562134-00-3	562134-01-4	562134-02-5
	562134-03-6	562134-04-7	562134-05-8	562134-06-9	562134-07-0
	562134-08-1	562134-09-2	562134-10-5	562134-11-6	562134-12-7
	562134-13-8	562134-14-9	562134-15-0	562134-16-1	562134-17-2
	562134-18-3	562134-19-4	562134-20-7	562134-21-8	562134-22-9
	562134-23-0	562134-24-1	562134-25-2	562134-26-3	562134-27-4
	562134-28-5	562134-29-6	562134-30-9	562134-31-0	562134-32-1
	562136-11-2	562136-12-3	562136-13-4	562136-14-5	562136-15-6
	562136-16-7	562136-17-8	562136-18-9	562136-19-0	562136-20-3
	562136-21-4	562136-22-5	562136-23-6	562136-24-7	562136-25-8
	562136-26-9	562136-27-0	562136-28-1	562136-29-2	562136-30-5
	562136-31-6	562136-32-7	562136-33-8	562136-34-9	562136-35-0
	562136-36-1	562136-37-2	562136-38-3	562136-39-4	562136-40-7
	562136-41-8	562136-42-9	562136-43-0	562136-44-1	562136-45-2
	562136-46-3	562136-47-4	562136-48-5	562136-49-6	562136-50-9
	562136-51-0	562136-52-1	562136-53-2	562136-54-3	562136-55-4
	562136-56-5	562136-57-6	562136-58-7	562136-59-8	562136-60-1
	562136-61-2	562136-62-3	562136-63-4	562136-64-5	562136-65-6
	562136-66-7	562136-67-8	562136-68-9	562136-69-0	562136-70-3
	562136-71-4	562136-72-5	562136-73-6	562136-74-7	562136-75-8
	562136-76-9	562136-77-0	562136-78-1	562136-79-2	562136-80-5
	562136-81-6	562136-82-7	562136-83-8	562136-84-9	562136-85-0
	562136-86-1	562136-87-2	562136-88-3	562136-89-4	562136-90-7
	562136-91-8	562136-92-9	562136-93-0	562136-94-1	562136-95-2
	562136-96-3	562136-97-4	562136-98-5	562136-99-6	562137-00-2
	562137-01-3	562137-02-4	562137-03-5	562137-04-6	562137-05-7
	562137-06-8	562137-07-9	562137-08-0	562137-09-1	562137-10-4
	562137-11-5	562137-12-6	562137-13-7	562137-14-8	562137-15-9
	562137-16-0	562137-17-1	562137-18-2	562137-19-3	562137-20-6
	562137-21-7	562137-22-8	562137-23-9	562137-24-0	562137-25-1
	562137-26-2	562137-27-3	562137-28-4	562137-29-5	562137-30-8
	562137-31-9	562137-32-0	562137-33-1	562137-34-2	562137-35-3
	562137-36-4	562137-37-5	562137-38-6	562137-39-7	562137-40-0
	562137-41-1	562137-42-2	562137-43-3	562137-44-4	562137-45-5
	562137-46-6	562137-47-7	562137-48-8	562137-49-9	562137-50-2

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**
proteins for prolonged shelf-life of therapeutic proteins)

IT	562137-51-3	562137-52-4	562137-53-5	562137-54-6	562137-55-7
	562137-56-8	562137-57-9	562137-58-0	562137-59-1	562137-60-4
	562137-61-5	562137-62-6	562137-63-7	562137-64-8	562137-65-9
	562137-66-0	562137-67-1	562137-68-2	562137-69-3	562137-70-6
	562137-71-7	562137-72-8	562137-73-9	562137-74-0	562137-75-1

562137-76-2	562137-77-3	562137-78-4	562137-79-5	562137-84-2
562137-85-3	562137-86-4	562137-87-5	562137-88-6	562137-97-7
562137-98-8	562137-99-9	562138-00-5	562138-01-6	562138-02-7
562138-03-8	562138-04-9			

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**
 proteins for prolonged shelf-life of therapeutic proteins)

IT	562126-87-8	562126-88-9	562126-89-0	562126-90-3	562126-91-4
	562126-92-5	562126-93-6	562126-94-7	562126-95-8	562126-96-9
	562126-97-0	562126-98-1	562126-99-2	562127-00-8	562127-01-9
	562127-02-0	562127-03-1	562127-04-2	562127-05-3	562127-06-4
	562127-07-5	562127-08-6	562127-09-7	562127-10-0	562127-11-1
	562127-12-2	562127-13-3	562127-14-4	562127-15-5	562127-16-6
	562127-17-7	562127-18-8	562127-19-9	562127-20-2	562127-21-3
	562127-22-4	562127-23-5	562127-24-6	562127-25-7	562127-26-8
	562127-27-9	562127-28-0	562127-29-1	562127-30-4	562127-31-5
	562127-32-6	562127-33-7	562127-34-8	562127-35-9	562127-36-0
	562127-37-1	562127-38-2	562127-39-3	562127-40-6	562127-41-7
	562127-42-8	562127-43-9	562127-44-0	562127-45-1	562127-46-2
	562127-47-3	562127-48-4	562127-49-5	562127-50-8	562127-51-9
	562127-52-0	562127-53-1	562127-54-2	562127-55-3	562127-56-4
	562127-57-5	562127-58-6	562127-59-7	562127-60-0	562127-61-1
	562127-62-2	562127-63-3	562127-64-4	562127-65-5	562127-66-6
	562127-67-7	562127-68-8	562127-69-9	562127-70-2	562127-71-3
	562127-72-4	562127-73-5	562127-74-6	562127-75-7	562127-76-8
	562127-77-9	562127-78-0	562127-79-1	562127-80-4	562127-81-5
	562127-82-6	562127-83-7	562127-84-8	562127-85-9	562127-86-0
	562127-87-1	562127-88-2	562127-89-3	562127-90-6	562127-91-7
	562127-92-8	562127-93-9	562127-94-0	562127-95-1	562127-96-2
	562127-97-3	562127-98-4	562127-99-5	562128-00-1	562128-01-2
	562128-02-3	562128-03-4	562128-04-5	562128-05-6	562128-06-7
	562128-07-8	562128-08-9	562128-09-0	562128-10-3	562128-11-4
	562128-12-5	562128-13-6	562128-14-7	562128-15-8	562128-16-9
	562128-17-0	562128-18-1	562128-19-2	562128-20-5	562128-21-6
	562128-22-7	562128-23-8	562128-24-9	562128-25-0	562128-26-1
	562128-27-2	562128-28-3	562128-29-4	562128-30-7	562128-31-8
	562128-32-9	562128-33-0	562128-34-1	562128-35-2	562128-36-3
	562128-37-4	562128-38-5	562128-39-6	562128-40-9	562128-41-0
	562128-42-1	562128-43-2	562128-44-3	562128-45-4	562128-46-5
	562128-47-6	562128-48-7	562128-49-8	562128-50-1	562128-51-2
	562128-52-3	562128-53-4	562128-54-5	562128-55-6	562128-56-7
	562128-57-8	562128-58-9	562128-59-0	562128-60-3	562128-61-4
	562128-62-5	562128-63-6	562128-64-7	562128-65-8	562128-66-9
	562128-67-0	562128-68-1	562128-69-2	562128-70-5	562128-71-6
	562128-72-7	562128-73-8	562128-74-9	562128-75-0	562128-76-1
	562128-77-2	562128-78-3	562128-79-4	562128-80-7	562128-81-8
	562128-82-9	562128-83-0	562128-84-1	562128-85-2	562128-86-3
	562132-31-4	562132-33-6	562132-35-8	562132-55-2	562132-57-4
	562132-59-6	562132-61-0	562132-63-2	562132-65-4	562132-67-6
	562132-69-8	562132-71-2	562132-73-4	562132-75-6	562132-77-8
	562132-79-0	562132-81-4	562132-83-6	562132-84-7	562132-86-9
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	562133-11-3	562133-12-4	562133-13-5	562133-14-6	562133-15-7
	562133-16-8	562133-17-9	562133-18-0	562133-19-1	562133-20-4
	562133-32-8	562133-34-0	562133-38-4	562133-41-9	562133-43-1

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**
 proteins for prolonged shelf-life of therapeutic proteins)

IT	562133-46-4	562133-48-6	562133-51-1	562133-52-2	562133-54-4
	562133-55-5	562133-57-7	562133-60-2	562133-62-4	562133-64-6
	562133-65-7	562133-67-9	562133-68-0	562133-71-5	562133-73-7
	562134-33-2	562134-34-3	562134-35-4	562134-36-5	562134-37-6
	562134-38-7	562134-39-8	562134-40-1	562134-41-2	562134-42-3

562134-43-4	562134-44-5	562134-45-6	562134-46-7	562134-47-8
562134-48-9	562134-49-0	562134-50-3	562134-51-4	562134-52-5
562134-53-6	562134-54-7	562134-55-8	562134-56-9	562134-57-0
562134-58-1	562134-59-2	562134-60-5	562134-61-6	562134-62-7
562134-63-8	562134-64-9	562134-65-0	562134-66-1	562134-67-2
562134-68-3	562134-69-4	562134-70-7	562134-71-8	562134-72-9
562134-73-0	562134-74-1	562134-75-2	562134-76-3	562134-77-4
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562135-33-5	562135-34-6	562135-35-7	562135-36-8	562135-37-9
562135-38-0	562135-39-1	562135-40-4	562135-41-5	562135-42-6
562135-43-7	562135-44-8	562135-45-9	562135-46-0	562135-47-1
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562135-63-1	562135-64-2	562135-65-3	562135-66-4	562135-67-5
562135-68-6	562135-69-7	562135-70-0	562135-71-1	562135-72-2
562135-73-3	562135-74-4	562135-75-5	562135-76-6	562135-77-7
562135-78-8	562135-79-9	562135-80-2	562135-81-3	562135-82-4
562135-83-5	562135-84-6	562135-85-7	562135-86-8	562135-87-9
562135-88-0	562135-89-1	562135-90-4	562135-91-5	562135-92-6
562135-93-7	562135-94-8	562135-95-9	562135-96-0	562135-97-1
562135-98-2	562135-99-3	562136-00-9	562136-01-0	562136-02-1
562136-03-2	562136-04-3	562136-05-4	562136-06-5	562136-07-6
562136-08-7	562136-09-8	562136-10-1	562137-80-8	562137-81-9
562137-82-0	562137-83-1	562137-89-7	562137-90-0	562137-91-1
562137-92-2	562137-93-3	562137-94-4	562137-95-5	562137-96-6
562138-05-0	562138-06-1	562138-07-2	562138-08-3	562138-09-4
562138-10-7	562138-11-8	562138-12-9	562138-13-0	562138-14-1
562138-15-2	562138-16-3	562138-17-4		

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**

proteins for prolonged shelf-life of therapeutic proteins)

IT 2543-43-3 16941-32-5, Glucagon (swine) 16960-16-0,
 α1-24-Corticotropin 33017-11-7, Proinsulin C-peptide (human)
 40958-31-4, Somatostatin (sheep reduced) 62087-72-3 65505-61-5
 75306-06-8, Somatostatin-28 (sheep reduced) 82177-09-1 85482-68-4
 85734-71-0 91917-63-4, Atrial natriuretic peptide-28 (human reduced)
 110543-54-9 118934-21-7 119777-39-8 122024-47-9 125677-89-6
 130912-02-6 131748-18-0 131748-19-1 134374-28-0 147613-04-5
 155709-76-5 166980-40-1 170098-75-6 177339-71-8 192503-43-8
 197520-45-9 247166-37-6 263906-58-7 283148-45-8 313951-59-6
 367273-46-9 367273-47-0 367273-48-1 404935-01-9 477953-25-6
 477953-26-7 477953-27-8 477953-28-9 477953-29-0 477953-30-3
 477953-31-4 477953-32-5 477953-33-6 477953-34-7 477953-35-8
 478188-11-3 478188-13-5 561304-79-8 561304-80-1 561304-81-2
 561304-86-7 561304-88-9 561304-92-5 562077-29-6 562077-30-9
 562077-31-0 562077-32-1 562077-33-2 562077-34-3 562077-35-4
 562077-36-5 562077-37-6 562077-38-7 562077-39-8 562077-40-1
 562077-41-2

RL: PRP (Properties)

(unclaimed sequence; **albumin fusion** proteins for
prolonged shelf-life of therapeutic proteins)

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TI **Albumin fusion proteins for prolonged shelf-life of therapeutic proteins**

IN Rosen, Craig A.; Haseltine, William A.

PA Human Genome Sciences, Inc., USA

SO PCT Int. Appl., 1086 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07K

CC 63-3 (Pharmaceuticals)

Section cross-reference(s): 3

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003059934	A2	20030724	WO 2002-US40892	20021223
	WO 2003059934	A3	20040226		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRAI	US 2001-341811P	P	20011221
	US 2002-350358P	P	20020124
	US 2002-359370P	P	20020226
	US 2002-360000P	P	20020228
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	US 2002-370227P	P	20020408
	US 2002-378950P	P	20020510
	US 2002-398008P	P	20020724
	US 2002-402131P	P	20020809
	US 2002-402708P	P	20020813
	US 2002-411355P	P	20020918
	US 2002-414984P	P	20021002
	US 2002-417611P	P	20021011
	US 2002-420246P	P	20021023
	US 2002-423623P	P	20021105

AB The present invention encompasses **albumin fusion** proteins. Many therapeutic proteins in their native state or when recombinantly produced are typically labile mols. exhibiting short shelf-lives, particularly when formulated in aqueous solns.; **fusions** of the therapeutic protein with human serum **albumin** have a longer serum half-life and/or stabilized activity in solution (or in a pharmaceutical composition) in vitro and/or in vivo than the corresponding unfused therapeutic mols. Thus, **albumin fusion** proteins are provided comprising interferon β , interferon $\alpha 2$, insulin, bone morphogenetic protein 9, glucagon-like peptide-I(7-36), a hybrid interferon A/D, and extendin 4. Nucleic acid mols. encoding the **albumin fusion** proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the **albumin fusion** proteins of the invention and using these nucleic acids, vectors, and/or host cells. Addnl. the present invention encompasses pharmaceutical compns. comprising **albumin fusion** proteins and methods of treating or

preventing diseases, disorders or conditions related to diabetes mellitus using **albumin fusion** proteins of the invention.

ST **albumin fusion therapeutic protein shelflife**

IT Animal cell line
(293, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Animal cell line
(CHO, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Animal cell line
(NSO, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Metabolism, animal
(disorder, treatment of; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Antidiabetic agents

Antiobesity agents

Cardiovascular agents

Human

Linking agents

Molecular cloning
(human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT **Fusion proteins (chimeric proteins)**
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Signal peptides
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Diabetes mellitus
(insulin-dependent, treatment of; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Animal cell
(mammalian, recombinant expression host; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Nerve, disease
(neuropathy, treatment of; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Diabetes mellitus
(non-insulin-dependent, treatment of; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Protein sequences
(of human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Plasmid vectors
(pC4; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Plasmid vectors
(pEE12.1; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Plasmid vectors
(pSAC35; human serum **albumin fusion** proteins for

prolonged shelf-life of therapeutic proteins)

IT Saccharomyces cerevisiae

Yeast
 (recombinant expression host that is glycosylation and protease-deficient; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Eye, disease
 (retinopathy, treatment of; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT **Albumins, biological studies**
 RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (serum; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Cardiovascular system, disease

Endocrine system, disease

Heart, disease

Hyperglycemia

Kidney, disease

Nervous system, disease

Obesity
 (treatment of; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Interferons
 RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Interferons
 RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Interferons
 RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α D; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT Interferons
 RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β ; human serum **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT 75306-06-8, Somatostatin-28 (sheep reduced) 561304-81-2 561353-88-6
 RL: PRP (Properties)
 (Unclaimed; **albumin fusion** proteins for prolonged shelf-life of therapeutic proteins)

IT 561347-54-4DP, **Albumin** (human), subfragments, **fusion** proteins 561347-55-5P 561347-56-6P 561347-57-7P 561347-58-8P
 561347-59-9P 561347-60-2P 561347-61-3P 561347-62-4P 561347-63-5P
 561347-64-6P 561347-65-7P 561347-66-8P 561347-67-9P 561347-68-0P
 561347-69-1P 561347-70-4P 561347-71-5P 561347-72-6P 561347-73-7P
 561347-74-8P 561347-75-9P 561347-76-0P 561347-77-1P 561347-78-2P
 561347-79-3P
 RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(amino acid sequence; human serum **albumin fusion**
 proteins for prolonged shelf-life of therapeutic proteins)

IT 9004-10-8P, Insulin, biological studies 107444-51-9P,
 (7-36)Glucagon-like peptide 1 amide 141732-76-5P, Extendin 4
 305835-60-3P, Bone morphogenetic protein 9
 RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); PRP
 (Properties); THU (Therapeutic use); BIOL (Biological study); PREP
 (Preparation); USES (Uses)
 (human serum **albumin fusion** proteins for prolonged
 shelf-life of therapeutic proteins)

IT 50-99-7, D-Glucose, biological studies
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (maintenance of basal level of; human serum **albumin fusion**
 proteins for prolonged shelf-life of therapeutic proteins)

IT 561347-53-3
 RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
 (nucleotide sequence; human serum **albumin fusion**
 proteins for prolonged shelf-life of therapeutic proteins)

IT 561350-18-3, 1: PN: WO03059934 SEQID: 1 unclaimed DNA 561350-19-4, 2:
 PN: WO03059934 SEQID: 2 unclaimed DNA 561350-20-7, 5: PN: WO03059934
 SEQID: 5 unclaimed DNA 561350-21-8, 6: PN: WO03059934 SEQID: 6 unclaimed
 DNA 561350-22-9, 7: PN: WO03059934 SEQID: 7 unclaimed DNA 561350-23-0,
 8: PN: WO03059934 SEQID: 8 unclaimed DNA 561350-24-1, 9: PN: WO03059934
 SEQID: 9 unclaimed DNA 561350-25-2 561350-26-3 561350-27-4
 561350-28-5 561350-29-6 561350-30-9 561350-31-0 561350-32-1
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 561351-76-6 561351-77-7 561351-78-8 561351-79-9 561351-80-2
 561351-81-3 561351-82-4 561351-83-5 561351-84-6 561351-85-7
 561351-86-8 561351-88-0 561351-89-1 561351-90-4 561351-91-5
 561351-92-6 561351-93-7 561351-94-8 561351-95-9 561351-96-0
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 561352-12-3 561352-13-4 561352-14-5 561352-15-6 561352-16-7
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 561352-45-2 561352-46-3 561352-47-4 561352-48-5 561352-49-6
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 561352-62-3 561352-63-4 561352-64-5 561352-66-7 561352-67-8
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 561352-80-5 561352-82-7 561352-83-8 561352-84-9 561352-85-0

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561352-91-8	561352-92-9	561352-93-0	561352-94-1	561352-95-2
561352-96-3	561352-97-4	561352-98-5	561352-99-6	561353-00-2
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561353-06-8	561353-07-9	561353-08-0	561353-09-1	561353-10-4
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561354-12-9	561354-13-0	561354-14-1	561354-15-2	561354-16-3
561354-17-4	561354-18-5	561354-19-6	561354-20-9	561354-21-0

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**
proteins for prolonged shelf-life of therapeutic proteins)

IT	561354-22-1	561354-23-2	561354-24-3	561354-25-4	561354-26-5
	561354-27-6	561354-28-7	561354-29-8	561354-30-1	561354-31-2
	561354-32-3	561354-33-4	561354-34-5	561354-35-6	561354-36-7
	561354-37-8	561354-38-9	561354-39-0	561354-40-3	561354-41-4
	561354-42-5	561354-43-6	561354-44-7	561354-45-8	561354-46-9
	561354-47-0	561354-48-1	561354-49-2	561354-50-5	561354-51-6
	561354-52-7	561354-53-8	561354-54-9	561354-55-0	561354-56-1
	561354-57-2	561354-58-3	561354-59-4	561354-60-7	561354-61-8
	561354-62-9	561354-65-2	561354-66-3	561354-67-4	561354-68-5
	561354-69-6	561354-70-9	561354-71-0	561354-72-1	561354-73-2
	561354-74-3	561354-75-4	561354-76-5	561354-77-6	561354-78-7
	561354-79-8	561354-80-1	561354-81-2	561354-82-3	561354-83-4
	561354-84-5	561354-85-6	561354-86-7	561354-87-8	561354-92-5
	561354-93-6	561354-96-9	561354-97-0		

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**
proteins for prolonged shelf-life of therapeutic proteins)

IT	561350-49-0	561350-50-3	561350-51-4	561350-52-5	561350-53-6
	561350-54-7	561350-55-8	561350-56-9	561350-57-0	561350-58-1
	561350-59-2	561350-60-5	561350-61-6	561350-62-7	561350-63-8
	561350-64-9	561350-65-0	561350-66-1	561350-67-2	561350-68-3
	561350-69-4	561350-70-7	561350-71-8	561350-72-9	561350-73-0
	561350-74-1	561350-75-2	561350-76-3	561350-77-4	561350-78-5
	561350-79-6	561350-80-9	561350-81-0	561350-82-1	561350-83-2
	561350-84-3	561350-85-4	561350-86-5	561350-87-6	561350-88-7
	561350-89-8	561350-90-1	561350-91-2	561350-92-3	561350-93-4
	561350-94-5	561350-95-6	561350-96-7	561350-97-8	561350-98-9
	561350-99-0	561351-00-6	561351-01-7	561352-36-1	561352-38-3
	561352-40-7	561352-51-0	561352-52-1	561352-53-2	561352-54-3
	561352-55-4	561352-56-5	561352-57-6	561352-65-6	561352-68-9
	561352-70-3	561352-72-5	561352-74-7	561352-76-9	561352-78-1
	561352-79-2	561352-81-6	561353-19-3	561353-20-6	561353-21-7
	561353-22-8	561353-23-9	561353-24-0	561353-25-1	561353-26-2
	561353-27-3	561353-28-4	561353-29-5	561353-30-8	561353-31-9
	561353-32-0	561353-33-1	561353-34-2	561353-35-3	561353-36-4
	561353-37-5	561353-38-6	561353-39-7	561353-40-0	561353-41-1
	561353-42-2	561353-43-3	561353-44-4	561353-45-5	561353-46-6
	561353-47-7	561353-48-8	561353-49-9	561353-50-2	561353-51-3
	561353-52-4	561353-53-5	561353-54-6	561353-55-7	561353-56-8
	561353-57-9	561353-58-0	561353-59-1	561353-60-4	561353-61-5
	561353-62-6	561353-63-7	561353-64-8	561353-65-9	561353-66-0
	561353-67-1	561353-68-2	561353-69-3	561353-70-6	561353-71-7
	561353-72-8	561353-73-9	561353-74-0	561353-75-1	561353-76-2
	561353-77-3	561353-78-4	561353-79-5	561353-80-8	561353-81-9
	561353-82-0	561353-83-1	561353-84-2	561353-85-3	561353-86-4
	561353-87-5	561353-89-7	561353-90-0	561353-91-1	561353-92-2
	561353-93-3	561353-94-4	561353-95-5	561353-96-6	561353-97-7
	561353-98-8	561353-99-9	561354-00-5	561354-01-6	561354-02-7
	561354-03-8	561354-04-9	561354-05-0	561354-06-1	561354-07-2
	561354-08-3	561354-09-4	561354-63-0	561354-64-1	561354-88-9
	561354-89-0	561354-90-3	561354-91-4	561354-94-7	561354-95-8

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**
proteins for prolonged shelf-life of therapeutic proteins)

IT 33017-11-7, Proinsulin C-peptide (human) 40958-31-4, Somatostatin (sheep reduced) 82177-09-1 85482-68-4 85734-71-0 122024-47-9
125677-89-6 130912-02-6 131748-18-0 131748-19-1 157654-59-6
166980-40-1 170098-75-6 192503-43-8 247166-37-6 367273-47-0
367273-48-1 477953-25-6 477953-26-7 477953-27-8 477953-28-9
477953-29-0 477953-30-3 477953-31-4 477953-32-5 477953-33-6
477953-34-7 477953-35-8 478188-11-3 478188-13-5 561304-79-8
561304-80-1 561304-82-3 561304-83-4 561304-84-5 561304-85-6
561304-86-7 561304-87-8 561304-88-9 561304-92-5 561304-95-8

RL: PRP (Properties)

(unclaimed sequence; **albumin fusion** proteins for
prolonged shelf-life of therapeutic proteins)

L35 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:300832 HCAPLUS

DN 138:326508

ED Entered STN: 18 Apr 2003

TI **Albumin fusion** proteins with therapeutic proteins for
improved shelf-life

IN Rosen, Craig A.; Haseltine, William A.

PA Human Genome Sciences, Inc., USA

SO PCT Int. Appl., 457 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM A61K

CC 63-3 (Pharmaceuticals)

Section cross-reference(s): 3, 15

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003030821	A2	20030417	WO 2002-US31794	20021004
WO 2003030821	A3	20031211		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 2001-327281P P 20011005

AB The present invention encompasses **fusion** proteins of
albumin with various therapeutic proteins. Therapeutic proteins
may be stabilized to extend the shelf-life, and/or to retain the
therapeutic protein's activity for extended periods of time in solution, in
vitro and/or in vivo, by genetically or chemical **fusing** or
conjugating the therapeutic protein to **albumin** or a fragment or
variant of **albumin**. Use of **albumin fusion**

proteins may also reduce the need to formulate the protein solns. with
large excesses of carrier proteins to prevent loss of therapeutic proteins
due to factors such as binding to the container. Nucleic acid mols.

encoding the **albumin fusion** proteins of the invention
are also encompassed by the invention, as are vectors containing these nucleic
acids, host cells transformed with these nucleic acids vectors, and
methods of making the **albumin fusion** proteins of the
invention and using these nucleic acids, vectors, and/or host cells.

Thus, plasmid vectors are constructed in which DNA encoding the desired therapeutic protein may be inserted for expression of the **albumin fusion** proteins in yeast (pPPC0005) and mammalian cells (pC4:HSA). Yeast-derived signal sequences from *Saccharomyces cerevisiae* invertase SUC2 gene, or the stanniocalcin or native human serum **albumin** signal peptides, are used for secretion in yeast or mammalian systems, resp. Thus, the **fusion** product of human growth hormone with residues 1-387 of human serum **albumin** retains essentially intact biol. activity after 5 wk of incubation in tissue culture media at 37°, whereas recombinant human growth hormone used as control lost its biol. activity in the first week. Although the potency of the **albumin fusion** proteins is slightly lower than the unfused counterparts in rapid bioassays, their biol. stability results in much higher biol. activity in the longer term in vitro assay or in vivo assays. Addnl., the present invention encompasses pharmaceutical compns. Comprising **albumin fusion** proteins and methods of treating, preventing, or ameliorating diseases, disorders or conditions using **albumin fusion** proteins of the invention.

ST **albumin fusion therapeutic protein shelflife**

IT Drug delivery systems

Gene therapy

Human

Molecular cloning

(**albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT **Fusion proteins (chimeric proteins)**

Interferons

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(**albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Signal peptides

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(**albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Peptides, biological studies

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(linkers; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Animal cell

(mammalian, recombinant expression host; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors

(pC4:HSA, for mammalian cell expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors

(pPPC0005, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors

(pScCHSA, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors

(pScNHSA, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Linking agents

(peptide; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT *Saccharomyces cerevisiae*

Yeast

- (recombinant expression host; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)
- IT **Albumins, biological studies**
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (serum; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)
- IT **Genetic element**
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (signal sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)
- IT **Antibodies**
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (single chain; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)
- IT **Proteins**
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (therapeutic; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)
- IT **Interferons**
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)
- IT 9002-72-6DP, **Growth hormone, fusion proteins with albumin**
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**albumin fusion** proteins with therapeutic proteins
 for improved shelf-life)
- IT 511566-72-6DP, **Albumin** (human blood serum), full-length or subfragment **fusion** proteins
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (amino acid sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)
- IT 511566-73-7
 RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
 (nucleotide sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)
- IT 511603-12-6 511603-13-7 511603-14-8 511603-15-9 511603-16-0
 511603-17-1 511603-18-2 511603-19-3 511603-20-6 511603-21-7
 511603-22-8 511603-23-9 511603-24-0 511603-25-1 511603-26-2
 511603-27-3 511603-28-4 511603-29-5 511603-30-8 511603-31-9
 511603-32-0 511603-33-1 511603-34-2 511603-35-3 511603-36-4
 511603-37-5 511603-38-6 511603-39-7 511603-40-0 511603-41-1
 511603-42-2 511603-43-3 511603-44-4 511603-45-5 511603-46-6
 511603-47-7 511603-48-8 511603-49-9 511603-50-2 511603-51-3
 511603-52-4 511603-53-5 511603-54-6 511603-55-7 511603-56-8
 511603-57-9 511603-58-0 511603-59-1 511603-60-4 511603-61-5
 511603-62-6 511603-63-7 511603-64-8 511603-65-9 511603-66-0
 511603-67-1 511603-68-2 511603-69-3
 RL: PRP (Properties)
 (unclaimed nucleotide sequence; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)
- IT 122024-47-9 131748-18-0 367273-46-9 367273-47-0 367273-48-1
 RL: PRP (Properties)
 (unclaimed sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)

L35 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:781112 HCAPLUS
 DN 135:348852
 ED Entered STN: 26 Oct 2001
 TI **Albumin fusion proteins with therapeutic proteins for improved shelf-life**
 IN Rosen, Craig A.; Haseltine, William A.
 PA Human Genome Sciences, Inc., USA
 SO PCT Int. Appl., 394 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C12N015-00
 CC 63-3 (Pharmaceuticals)
 Section cross-reference(s): 3, 15
 FAN.CNT 7

Wdof date

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001079480	A1	20011025	WO 2001-US11991	20010412
	WO 2001079480	C2	20030109		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	EP 1276856	A1	20030122	EP 2001-937179	20010412
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
	US 2003125247	A1	20030703	US 2001-833041	20010412
	US 2003171267	A1	20030911	US 2001-833117	20010412
	JP 2003530852	T2	20031021	JP 2001-577463	20010412
	US 2003199043	A1	20031023	US 2001-832501	20010412
	US 2003219875	A1	20031127	US 2001-833118	20010412
	US 2004010134	A1	20040115	US 2001-833245	20010412
PRAI	US 2000-229358P	P	20000412		
	US 2000-199384P	P	20000425		
	US 2000-256931P	P	20001221		
	WO 2001-US11991	W	20010412		
AB	The present invention encompasses fusion proteins of albumin with various therapeutic proteins. Therapeutic proteins may be stabilized to extend the shelf-life, and/or to retain the therapeutic protein's activity for extended periods of time in solution, <i>in vitro</i> and/or <i>in vivo</i> , by genetically or chemical fusing or conjugating the therapeutic protein to albumin or a fragment or variant of albumin . Use of albumin fusion proteins may also reduce the need to formulate the protein solns. with large excesses of carrier proteins to prevent loss of therapeutic proteins due to factors such as binding to the container. Nucleic acid mols. encoding the albumin fusion proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the albumin fusion proteins of the invention and using these nucleic acids, vectors, and/or host cells. Thus, plasmid vectors are constructed in which DNA encoding the desired therapeutic protein may be inserted for expression of the albumin fusion proteins in yeast (pPPC0005) and mammalian cells (pC4:HSA). Yeast-derived signal sequences from <i>Saccharomyces cerevisiae</i> invertase SUC2 gene, or the stanniocalcin or native human serum albumin				

signal peptides, are used for secretion in yeast or mammalian systems, resp. Thus, the **fusion** product of human growth hormone with residues 1-387 of human serum **albumin** retains essentially intact biol. activity after 5 wk. of incubation in tissue culture media at 37°, whereas recombinant human growth hormone used as control lost its biol. activity in the first week. Although the potency of the **albumin fusion** proteins is slightly lower than the unfused counterparts in rapid bioassays, their biol. stability results in much higher biol. activity in the longer term in vitro assay or in vivo assays. Addnl., the present invention encompasses pharmaceutical compns. comprising **albumin fusion** proteins and methods of treating, preventing, or ameliorating diseases, disorders or conditions using **albumin fusion** proteins of the invention.

- ST **albumin fusion therapeutic protein shelflife**
 IT Receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (4-1BB; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Cytokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (BAFF; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Cytokine receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (DR4 (death receptor 4); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Cytokine receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (DR5 (death receptor 5); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Cytokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MPIF-1 (myeloid progenitor inhibitory factor 1); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Steroid receptors
 Thyroid hormone receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (TR (thyroid/steroid hormone receptor), 11; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Steroid receptors
 Thyroid hormone receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (TR (thyroid/steroid hormone receptor), 12; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Steroid receptors
 Thyroid hormone receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (TR (thyroid/steroid hormone receptor), 13; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Steroid receptors
 Thyroid hormone receptors

- RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TR (thyroid/stEROid hormone receptor), 14; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Steroid receptors
Thyroid hormone receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TR (thyroid/stEROid hormone receptor), 16; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Steroid receptors
Thyroid hormone receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TR (thyroid/stEROid hormone receptor), 8; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Steroid receptors
Thyroid hormone receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TR2 (thyroid/stEROid hormone receptor 2); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Steroid receptors
Thyroid hormone receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TR3 (thyroid/stEROid hormone receptor 3); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TRAIL (tumor necrosis factor-related apoptosis-inducing ligand); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Cytokine receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TRAIL, 4; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Cytokine receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TRAIL, 6; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Cytokine receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TRAIL-R3; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Drug delivery systems
Gene therapy
Molecular cloning
(**albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Cell adhesion molecules
Cytokines
Enzymes, biological studies
Fas antigen

Fas ligand
Fusion proteins (chimeric proteins)
Growth factors, animal
Interferons
Synthetic gene
Tumor necrosis factor receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(albumin fusion proteins with therapeutic proteins
for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(apoptosis-regulating, AIM-2; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT Cytokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(endokine; albumin fusion proteins with therapeutic
proteins for improved shelf-life)

IT Signal peptides
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(for improved secretion in yeast or mammalian cells; albumin
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Interferons
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(keratinocyte-derived; albumin fusion proteins with
therapeutic proteins for improved shelf-life)

IT Animal cell
(mammalian, recombinant expression host; albumin
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Plasmid vectors
(pC4:HSA, for mammalian cell expression; albumin
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Plasmid vectors
(pPPC0005, for yeast expression; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors
(pScCHSA, for yeast expression; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors
(pScNHSA, for yeast expression; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT Saccharomyces cerevisiae
Yeast
(recombinant expression host; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT **Albumins, biological studies**
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(serum; albumin fusion proteins with therapeutic
proteins for improved shelf-life)

IT Genetic element
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(signal sequence, for improved secretion in yeast or mammalian cells;
albumin fusion proteins with therapeutic proteins for
improved shelf-life)

- IT Antibodies
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (single chain; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (therapeutic; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interferons
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokine receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β chemokine receptor CCR5; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Tumor necrosis factors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (γ ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Tumor necrosis factors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (δ ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT 189460-40-0P, Connective tissue growth factor
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (2 and 4; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT 9001-84-7P, Phospholipase A2
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (T-cell lymphoma lipoprotein-associated; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT 9002-67-9P, Luteinizing hormone 9002-68-0P, FSH 9002-72-6P, Growth hormone 9004-10-8P, Insulin, biological studies 11096-26-7P, Erythropoietin 67763-96-6P, Insulin-like growth factor 1 83869-56-1P, GM-CSF 124861-55-8P, Proteinase inhibitor, TIMP-2 127464-60-2P, Vascular endothelial growth factor 140208-24-8P, Proteinase inhibitor, TIMP-1 143011-72-7P, G-CSF 145809-21-8P, Proteinase inhibitor, TIMP-3 148348-15-6P, Fibroblast growth factor 7 171758-70-6P, Keratinocyte growth factor 2 186207-03-4P, Proteinase inhibitor, TIMP-4 205944-50-9P, Osteoprotegerin 207621-35-0P, Osteoprotegerin ligand 244019-42-9P, Vascular endothelial growth factor 2
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT 127361-02-8DP, **Albumin** (human blood serum clone HSA-II/HSA-I-A protein moiety reduced), full-length or subfragment **fusion** products
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (nucleotide sequence; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT 155945-98-5, PN: US5962255 SEQID: 59 unclaimed DNA 156163-00-7 167728-69-0 167728-70-3 167728-71-4 167728-72-5 167728-73-6

167731-70-6 167731-74-0, PN: US5962255 SEQID: 56 unclaimed DNA
 167731-75-1, PN: US5962255 SEQID: 57 unclaimed DNA 167731-76-2, PN:
 US5962255 SEQID: 58 unclaimed DNA 167731-77-3, PN: US5962255 SEQID: 60
 unclaimed DNA 167731-78-4, PN: US5962255 SEQID: 61 unclaimed DNA
 167731-79-5 167731-80-8 167731-81-9 167732-10-7 167732-11-8, PN:
 US5962255 SEQID: 551 unclaimed DNA 167732-12-9 167732-13-0
 167732-14-1, PN: US5962255 SEQID: 554 unclaimed DNA 167732-15-2, PN:
 US5962255 SEQID: 555 unclaimed DNA 167732-16-3 167732-17-4
 167732-18-5 167732-19-6, PN: US5962255 SEQID: 98 unclaimed DNA
 167732-20-9, PN: US5962255 SEQID: 572 unclaimed DNA 167732-21-0
 167732-22-1, PN: US5962255 SEQID: 574 unclaimed DNA 195164-37-5
 217893-77-1, GenBank A63614 217893-78-2, GenBank A63615 217893-79-3,
 GenBank A63616 217893-80-6, GenBank A63617 217893-81-7, GenBank A63618
 217893-82-8, GenBank A63619 217893-83-9, GenBank A63620 217893-84-0,
 GenBank A63621 217893-85-1, GenBank A63622 217893-86-2, GenBank A63624
 217893-89-5, GenBank A63627 217893-90-8, GenBank A63628 217893-91-9,
 GenBank A63629 217893-92-0, GenBank A63630 367319-52-6 367319-53-7
 367319-54-8 367319-55-9 367319-56-0 367319-57-1 367319-58-2
 367319-59-3 367319-60-6 367319-61-7 367319-62-8 367319-63-9
 367319-64-0 367319-65-1 367319-66-2

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**

proteins with therapeutic proteins for improved shelf-life)

IT 173586-11-3 221879-28-3 222614-92-8 352583-76-7, Protein (human
clone 785CIP2B_67) 370649-84-6 370649-85-7

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**

proteins with therapeutic proteins for improved shelf-life)

IT 122024-47-9 131748-18-0 244008-03-5, PN: WO9947540 SEQID: 3 unclaimed
DNA 244008-06-8, PN: WO9947540 SEQID: 4 unclaimed DNA 244008-07-9, PN:
WO9947540 SEQID: 5 unclaimed DNA 244008-08-0, PN: WO9947540 SEQID: 6
unclaimed DNA 244008-09-1, PN: WO9947540 SEQID: 7 unclaimed DNA
244008-12-6, 8: PN: WO0183510 SEQID: 8 unclaimed DNA 244008-13-7, PN:
WO9947540 SEQID: 9 unclaimed DNA 244008-14-8, PN: WO9947540 SEQID: 10
unclaimed DNA 367273-46-9 367273-47-0 367273-48-1 370598-71-3
370649-86-8

RL: PRP (Properties)

(unclaimed sequence; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Delta Biotechnology Limited; EP 0322094 A1 1989 HCAPLUS
- (2) Delta Biotechnology Limited; WO 9523857 A1 1995 HCAPLUS

L35 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

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DN 135:348851

ED Entered STN: 26 Oct 2001

TI **Albumin fusion** proteins with therapeutic proteins for
improved shelf-life

IN Rosen, Craig A.; Haseltine, William A.

PA Human Genome Sciences, Inc, USA

SO PCT Int. Appl., 606 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C12N

CC 63-3 (Pharmaceuticals)

Section cross-reference(s): 3, 15

FAN.CNT 7

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 2001079444	A2	20011025	WO 2001-US12013	20010412

WO 2001079444 A3 20020523
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
 CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
 HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
 LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
 RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ,
 VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 AU 2001074809 A5 20011020 AU 2001-74809 20010412
 EP 1278544 A2 20030129 EP 2001-941457 20010412
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 US 2003125247 A1 20030703 US 2001-833041 20010412
 US 2003171267 A1 20030911 US 2001-833117 20010412
 JP 2003530847 T2 20031021 JP 2001-577428 20010412
 US 2003199043 A1 20031023 US 2001-832501 20010412
 US 2003219875 A1 20031127 US 2001-833118 20010412
 US 2004010134 A1 20040115 US 2001-833245 20010412
 PRAI US 2000-229358P P 20000412
 US 2000-199384P P 20000425
 US 2000-256931P P 20001221
 WO 2001-US12013 W 20010412

AB The present invention encompasses **fusion** proteins of **albumin** with various therapeutic proteins. Therapeutic proteins may be stabilized to extend the shelf-life, and/or to retain the therapeutic protein's activity for extended periods of time in solution, in vitro and/or in vivo, by genetically or chemical **fusing** or conjugating the therapeutic protein to **albumin** or a fragment or variant of **albumin**. Use of **albumin fusion** proteins may also reduce the need to formulate the protein solns. with large excesses of carrier proteins to prevent loss of therapeutic proteins due to factors such as binding to the container. Nucleic acid mols. encoding the **albumin fusion** proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the **albumin fusion** proteins of the invention and using these nucleic acids, vectors, and/or host cells. Thus, plasmid vectors are constructed in which DNA encoding the desired therapeutic protein may be inserted for expression of the **albumin fusion** proteins in yeast (pPPC0005) and mammalian cells (pC4:HSA). Yeast-derived signal sequences from *Saccharomyces cerevisiae* invertase SUC2 gene, or the stanniocalcin or native human serum **albumin** signal peptides, are used for secretion in yeast or mammalian systems, resp. Thus, the **fusion** product of human growth hormone with residues 1-387 of human serum **albumin** retains essentially intact biol. activity after 5 wk of incubation in tissue culture media at 37°, whereas recombinant human growth hormone used as control lost its biol. activity in the first week. Although the potency of the **albumin fusion** proteins is slightly lower than the unfused counterparts in rapid bioassays, their biol. stability results in much higher biol. activity in the longer term in vitro assay or in vivo assays. Addnl., the present invention encompasses pharmaceutical compns. comprising **albumin fusion** proteins and methods of treating, preventing, or ameliorating diseases, disorders or conditions using **albumin fusion** proteins of the invention.

ST **albumin fusion therapeutic protein shelflife**

IT **Chemokines**

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (1-309; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(11; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(12; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(15; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(17; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(18; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interleukins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(19; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interleukins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(21; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(331D5; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(3; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(4-1BB; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

- (4; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(5; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(61164; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(6; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(7; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Bone morphogenetic proteins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(9; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Platelet-derived growth factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(AA; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(ACRP-30; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(ADEC (adenoid expressed chemokine); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interleukins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(AGF; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(APM-1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Act-2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Platelet-derived growth factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(BB; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class

- RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(BCMA; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Platelet-derived growth factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Bv-sis; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, 2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, 3; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, DGWCC; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, DVIC-1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, ELC; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, HCC-1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, IBICK; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, ILINCK; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, SLC (secondary lymphoid chemokine); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-C, STCP-1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

- (C-X-C, 3; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C-X-C; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C10; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Troponins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(C; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CC3; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CCF18; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CCR2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT CD antigens
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CD27; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Glycoproteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CD40-L (antigen CD40 ligand); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CTAP-III (connective tissue activating protein III); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Antigens
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CTLA-8; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokine receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(CXCR3; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Cerebus; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Chr19Kine; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Platelet-derived growth factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(D; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Cytokine receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(DR3 (death receptor 3); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(EDAR; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interleukins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(EDIRF I protein; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(EEC (eosinophil expressed chemokine); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(ENA-78 (epithelial neutrophil activating protein-78); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Hemopoietins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(FLT3 ligand; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(HCC-1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Tropoionins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(I; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(L105-7; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(LVEC-1 (liver expressed chemokine 1); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic

use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (LVEC-2 (liver expressed chemokine 2); **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (Lyn-1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (M110; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (M11A; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MACK (mammary associated chemokine); **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MCP-3 α and MCP-3 β ; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MCP-4; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MCPP (monocyte chemotactic proprotein); **albumin**
fusion proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MDC (macrophage-derived chemokine); **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Monokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MIG (monokine induced by γ -interferon); **albumin**
fusion proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MIG- β ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Interleukins
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (MIRAP; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

- (MP52; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (NOGO-66; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (NOGO-A; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (NOGO-B; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (NOGO-C; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Antigens
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (OX-40; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (PF4; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (PGBC (pituitary expressed chemokine); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokine receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (RANTES; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (SISD; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (SLC (secondary lymphoid tissue chemokine); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Troponins
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (T; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (TAC1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Cytokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TARC (thymus and activation regulated cytokine); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TMEC (T cell mixed lymphocyte reaction expressed chemokine); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Tarc; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Tim-1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Troy; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(ZCHEMO-8; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(ZSIG-35; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Drug delivery systems
Gene therapy
 Molecular cloning
 (**albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT CD30 (antigen)
CD40 (antigen)
Cell adhesion molecules
Cytokines
Enzymes, biological studies
Eotaxin
Erythropoietin receptors
Fas ligand
 Fusion proteins (chimeric proteins)
Granulocyte-macrophage colony-stimulating factor receptors
Growth factors, animal
Interferons
Interleukin 1
Interleukin 1 receptor antagonist
Interleukin 11
Interleukin 13
Interleukin 14
Interleukin 15
Interleukin 17
Interleukin 18
Interleukin 1 α

Interleukin 1 β
Interleukin 3
Interleukin 4
Interleukin 4 receptors
Interleukin 5 receptors
Interleukin 6
Interleukin 6 receptors
Interleukin 8
Interleukin 8 receptors
Interleukin 9
Lymphotoxin
Monocyte chemoattractant protein-1
Neutrophil-activating peptide-2
Platelet-derived growth factors
RANTES (chemokine)
Stem cell factor
Synthetic gene
Tumor necrosis factor receptors
Tumor necrosis factors
Vascular endothelial growth factor receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(albumin fusion proteins with therapeutic proteins
for improved shelf-life)

IT Interleukin 10
Interleukin 12
Interleukin 2
Interleukin 5
Interleukin 7
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(albumin fusion proteins with therapeutic proteins
for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(b57; albumin fusion proteins with therapeutic
proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(chemokine-like protein PF4-414; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT Growth factors, animal
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(chondromodulins, -like protein; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(collapsins, antibodies for; albumin fusion
proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(exodus; albumin fusion proteins with therapeutic
proteins for improved shelf-life)

IT Signal peptides
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(for improved secretion in yeast or mammalian cells; albumin
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Chemokines

- RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(fractalkines; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Agglutinins and Lectins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(galectin-4; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gene Patched-2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Vascular endothelial growth factor receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gene flt 1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Vascular endothelial growth factor receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gene flt 4; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gene patched; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(glycodelin-A; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(granulocyte chemotactic protein-2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gro- α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gro- β ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gro- γ ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(growth-related oncogene- α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(growth-related oncogene- β ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

- IT proteins with therapeutic proteins for improved shelf-life)
 - Proteins, specific or class
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (growth-related oncogene- γ ; **albumin fusion**
 - proteins with therapeutic proteins for improved shelf-life)
 - Cytokines
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interferon-inducible IP-10; **albumin fusion**
 - proteins with therapeutic proteins for improved shelf-life)
 - Interleukin receptors
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin 10 receptors; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Interleukin receptors
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin 11; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Interleukin receptors
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin 12; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Interleukin receptors
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin 13; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Interleukin receptors
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin 15; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Interleukin receptors
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin 17; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Interleukin receptors
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin 9; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Chemokines
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin C; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Proteins, specific or class
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin-1 accessory; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Proteins, specific or class
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (interleukin-2 receptor associated p43; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 - Lymphokines
 - RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic

use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(lymphotactins; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)

IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(macrophage inflammatory protein 3 α ; **albumin**
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(macrophage inflammatory protein 3 β ; **albumin**
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(macrophage inflammatory protein 3 γ ; **albumin**
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Animal cell
(mammalian, recombinant expression host; **albumin**
fusion proteins with therapeutic proteins for improved
shelf-life)

IT Antitumor agents
(melanoma; **albumin fusion** proteins with therapeutic
proteins for improved shelf-life)

IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monocyte chemoattractant protein 3; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)

IT Chemokine receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monocyte chemoattractant protein-1; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)

IT Chemokine receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monocyte chemoattractant protein-2; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(neurotactin; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)

IT Growth factors, animal
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(osteogenic protein 2; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)

IT Tumor necrosis factor receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(p75; **albumin fusion** proteins with therapeutic
proteins for improved shelf-life)

- IT Plasmid vectors
(pC4:HSA, for mammalian cell expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pPPC0005, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pScCHSa, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pScNHSA, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Placental hormones
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(placenta-derived mitogenic factors; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Saccharomyces cerevisiae
Yeast
(recombinant expression host; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT **Albumins, biological studies**
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(serum; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Genetic element
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(signal sequence, for improved secretion in yeast or mammalian cells; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Antibodies
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(single chain; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Chemokines
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(stem cell inhibitory factor; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Growth factors, animal
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(stroma-derived growth factor 1 α and 1 β ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(therapeutic; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interleukin 1 receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(type 3; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interleukin 1 receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(type II; **albumin fusion** proteins with therapeutic

proteins for improved shelf-life)

IT Interferons
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokine receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β chemokine receptor CCR5; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokine receptors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β chemokine receptor CCR7; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Transforming growth factors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β 1-; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Transforming growth factors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β 2-; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Chemokines
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β 9; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Thrombomodulin
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT 78990-62-2P, Calpain
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (10a and 10b and 10c; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT 50-56-6P, Oxytocin, biological studies 9002-62-4P, Prolactin, biological studies 9002-67-9P, Luteinizing hormone 9002-68-0P, FSH 9002-72-6P, Growth hormone 9004-10-8P, Insulin, biological studies 9014-42-0P, Thrombopoietin 11000-17-2P, Vasopressin 11096-26-7P, Erythropoietin 33507-63-0P, Substance P 67763-96-6P, Insulin-like growth factor 1 83869-56-1P, GM-CSF 106096-92-8P, Acidic fibroblast growth factor 106096-93-9P, Basic fibroblast growth factor 122191-40-6P, ICE proteinase 123584-45-2P, Fibroblast growth factor 4 129653-64-1P, Fibroblast growth factor 5 130939-41-2P, Fibroblast growth factor 6 130939-66-1P, Neurotrophin 3 140208-23-7P, Plasminogen activator inhibitor-1 141760-45-4P, Furin 142243-03-6P, Plasminogen activator inhibitor-2 143011-72-7P, G-CSF 143375-33-1P, Neurotrophin 4 148348-14-5P, Fibroblast growth factor 3 151185-16-9P, Fibroblast growth factor 9 157857-21-1P, Maspin 164003-41-2P, Fibroblast growth factor 8 185915-22-4P, Fibroblast growth factor 13 187888-07-9P, Endostatin 193363-12-1P, Vascular endothelial growth factor D 203874-76-4P, Fibroblast growth factor 12 204719-95-9P, Fibroblast growth factor 16 214210-47-6P, Neuropilin 1 219563-02-7P, Vascular endothelial growth factor E 227018-38-4P, Neuropilin 2 271597-10-5P, Growth/differentiation factor 1 322637-18-3P, Fibroblast growth factor 18 331718-56-0P, Resistin 332350-92-2P, Bone morphogenetic protein receptor kinase 3

- RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(albumin fusion proteins with therapeutic proteins for improved shelf-life)
- IT 144114-21-6, Retropepsin
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (inhibitors; **albumin fusion proteins with therapeutic proteins for improved shelf-life**)
- IT 127464-60-2P, Vascular endothelial growth factor
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (isoforms; **albumin fusion proteins with therapeutic proteins for improved shelf-life**)
- IT 127361-02-8DP, **Albumin** (human blood serum clone HSA-II/HSA-I-A protein moiety reduced), full-length or subfragment **fusion** products
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (nucleotide sequence; **albumin fusion proteins with therapeutic proteins for improved shelf-life**)
- IT 155945-98-5, PN: US5962255 SEQID: 59 unclaimed DNA 156163-00-7
 167728-69-0 167728-70-3 167728-71-4 167728-72-5 167728-73-6
 167731-70-6 167731-74-0, PN: US5962255 SEQID: 56 unclaimed DNA
 167731-75-1, PN: US5962255 SEQID: 57 unclaimed DNA 167731-76-2, PN:
 US5962255 SEQID: 58 unclaimed DNA 167731-77-3, PN: US5962255 SEQID: 60
 unclaimed DNA 167731-78-4, PN: US5962255 SEQID: 61 unclaimed DNA
 167731-79-5 167731-80-8 167731-81-9 167732-10-7 167732-11-8, PN:
 US5962255 SEQID: 551 unclaimed DNA 167732-12-9 167732-13-0
 167732-14-1, PN: US5962255 SEQID: 554 unclaimed DNA 167732-15-2, PN:
 US5962255 SEQID: 555 unclaimed DNA 167732-16-3 167732-17-4
 167732-18-5 167732-19-6, PN: US5962255 SEQID: 98 unclaimed DNA
 167732-20-9, PN: US5962255 SEQID: 572 unclaimed DNA 167732-21-0
 167732-22-1, PN: US5962255 SEQID: 574 unclaimed DNA 195164-37-5
 217893-77-1, GenBank A63614 217893-78-2, GenBank A63615 217893-79-3,
 GenBank A63616 217893-80-6, GenBank A63617 217893-81-7, GenBank A63618
 217893-82-8, GenBank A63619 217893-83-9, GenBank A63620 217893-84-0,
 GenBank A63621 217893-85-1, GenBank A63622 217893-86-2, GenBank A63624
 217893-89-5, GenBank A63627 217893-90-8, GenBank A63628 217893-91-9,
 GenBank A63629 217893-92-0, GenBank A63630 244008-03-5, PN: WO9947540
 SEQID: 3 unclaimed DNA 367319-52-6 367319-53-7 367319-54-8
 367319-55-9 367319-56-0 367319-57-1 367319-58-2 367319-59-3
 367319-60-6 367319-61-7 367319-62-8 367319-63-9 367319-64-0
 367319-65-1 367319-66-2 370965-07-4 370965-08-5
 RL: PRP (Properties)
 (unclaimed nucleotide sequence; **albumin fusion proteins with therapeutic proteins for improved shelf-life**)
- IT 122024-47-9 131748-18-0 244008-06-8, PN: WO9947540 SEQID: 4 unclaimed DNA 244008-07-9, PN: WO9947540 SEQID: 5 unclaimed DNA 244008-08-0, PN: WO9947540 SEQID: 6 unclaimed DNA 244008-09-1, PN: WO9947540 SEQID: 7 unclaimed DNA 244008-12-6, 8: PN: WO0183510 SEQID: 8 unclaimed DNA 244008-13-7, PN: WO9947540 SEQID: 9 unclaimed DNA 367273-46-9
 367273-47-0 367273-48-1 371149-71-2
 RL: PRP (Properties)
 (unclaimed sequence; **albumin fusion proteins with therapeutic proteins for improved shelf-life**)
- IT 102510-92-9P, Inhibin A
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α - and β -subunits; **albumin fusion proteins with therapeutic proteins for improved shelf-life**)
- IT 9061-61-4P, Nerve growth factor
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(β ; albumin fusion proteins with therapeutic proteins for improved shelf-life)

L35 ANSWER 7 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:781078 HCPLUS
 DN 135:348850
 ED Entered STN: 26 Oct 2001
 TI **Albumin fusion proteins with therapeutic proteins for improved shelf-life**
 IN Rosen, Craig A.; Haseltine, William A.
 PA Human Genome Sciences, Inc., USA
 SO PCT Int. Appl., 374 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C12N
 CC 63-3 (Pharmaceuticals)
 Section cross-reference(s): 3, 15

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	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001079443	A2	20011025	WO 2001-US11924	20010412
	WO 2001079443	A3	20020221		
		W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
		RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
AU	2001059063	A5	20011030	AU 2001-59063	20010412
EP	1274719	A2	20030115	EP 2001-932546	20010412
		R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR		
US	2003125247	A1	20030703	US 2001-833041	20010412
US	2003171267	A1	20030911	US 2001-833117	20010412
JP	2003530846	T2	20031021	JP 2001-577427	20010412
US	2003199043	A1	20031023	US 2001-832501	20010412
US	2003219875	A1	20031127	US 2001-833118	20010412
US	2004010134	A1	20040115	US 2001-833245	20010412
PRAI	US 2000-229358P	P	20000412		
	US 2000-199384P	P	20000425		
	US 2000-256931P	P	20001221		
	WO 2001-US11924	W	20010412		

AB The present invention encompasses **fusion** proteins of **albumin** with various therapeutic proteins. Therapeutic proteins may be stabilized to extend the shelf-life, and/or to retain the therapeutic protein's activity for extended periods of time in solution, *in vitro* and/or *in vivo*, by genetically or chemical **fusing** or conjugating the therapeutic protein to **albumin** or a fragment or variant of **albumin**. Use of **albumin fusion** proteins may also reduce the need to formulate the protein solns. with large excesses of carrier proteins to prevent loss of therapeutic proteins due to factors such as binding to the container. Nucleic acid mols. encoding the **albumin fusion** proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the **albumin fusion** proteins of the invention and using these nucleic acids, vectors, and/or host cells. Thus, plasmid vectors are constructed in which DNA encoding the desired therapeutic protein may be inserted for expression of the **albumin**

fusion proteins in yeast (pPPC0005) and mammalian cells (pC4:HSA). Yeast-derived signal sequences from *Saccharomyces cerevisiae* invertase SUC2 gene, or the stanniocalcin or native human serum **albumin** signal peptides, are used for secretion in yeast or mammalian systems, resp. Thus, the **fusion** product of human growth hormone with residues 1-387 of human serum **albumin** retains essentially intact biol. activity after 5 wk of incubation in tissue culture media at 37°, whereas recombinant human growth hormone used as control lost its biol. activity in the first week. Although the potency of the **albumin fusion** proteins is slightly lower than the unfused counterparts in rapid bioassays, their biol. stability results in much higher biol. activity in the longer term in vitro assay or in vivo assays. Addnl., the present invention encompasses pharmaceutical compns. comprising **albumin fusion** proteins and methods of treating, preventing, or ameliorating diseases, disorders or conditions using **albumin fusion** proteins of the invention.

ST **albumin fusion** therapeutic protein shelflife

IT Bone morphogenetic proteins

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Bone morphogenetic proteins

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(7; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Transport proteins

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(ABC1 (ATP-binding cassette-containing 1); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(ADMP (anti-dorsalizing morphogenetic protein-1); **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(Agouti signal; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(BPI (bactericidal/permeability-increasing), 21; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Transcription factors

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(BRCA1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Transcription factors

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(BRCA2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(Del-1 (developmentally regulated endothelial locus-1); **albumin**

- fusion proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(EMAP II (endothelial monocyte activating polypeptide II);
albumin fusion proteins with therapeutic proteins for improved shelf-life)
- IT Tropoins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(I; **albumin fusion proteins with therapeutic proteins for improved shelf-life)**)
- IT Toxins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(ML-I (mistletoe lectin I); **albumin fusion proteins with therapeutic proteins for improved shelf-life)**)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(MTP (microsomal transfer protein); **albumin fusion proteins with therapeutic proteins for improved shelf-life)**)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(NIF (neutrophil inhibitory factor); **albumin fusion proteins with therapeutic proteins for improved shelf-life)**)
- IT Receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(T1/ST2; **albumin fusion proteins with therapeutic proteins for improved shelf-life)**)
- IT Glycoproteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TNF-BP (tumor necrosis factor-binding protein); **albumin fusion proteins with therapeutic proteins for improved shelf-life)**)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(TRAIL (tumor necrosis factor-related apoptosis-inducing ligand);
albumin fusion proteins with therapeutic proteins for improved shelf-life))
- IT Drug delivery systems
Gene therapy
 Molecular cloning
 (**albumin fusion proteins with therapeutic proteins for improved shelf-life)**)
- IT Arrestins
CD4 (antigen)
CTLA-4 (antigen)
Calreticulin
Cell adhesion molecules
Ciliary neurotrophic factor
Cytokines
Decorins
Enzymes, biological studies
 Fusion proteins (chimeric proteins)
Gelsolin
Growth factors, animal
Heat-shock proteins

Interferons
Interleukin 1
Interleukin 1 receptor antagonist
Interleukin 10
Interleukin 11
Interleukin 12
Interleukin 18
Interleukin 4
Interleukin 4 receptors
Interleukin 8
LFA-3 (antigen)
Lactoferrins
Leukemia inhibitory factor
Myelin basic protein
Platelet-derived growth factors
Pleiotrophins
Stem cell factor
Synthetic gene
Tumor necrosis factor receptors
Tumor necrosis factor receptors
Tumor necrosis factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (albumin fusion proteins with therapeutic proteins
 for improved shelf-life)

IT Neurotrophic factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (brain-derived; albumin fusion proteins with
 therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (chemokine-binding; albumin fusion proteins with
 therapeutic proteins for improved shelf-life)

IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (corticotropin-releasing factor-binding; albumin
 fusion proteins with therapeutic proteins for improved
 shelf-life)

IT Toxins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (diphtheria, fusion protein with interleukin 2;
 albumin fusion proteins with therapeutic proteins for
 improved shelf-life)

IT Toxins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (exotoxins, Pseudomonas, fusion protein with acidic
 fibroblast growth factor; albumin fusion proteins
 with therapeutic proteins for improved shelf-life)

IT Signal peptides
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (for improved secretion in yeast or mammalian cells; albumin
 fusion proteins with therapeutic proteins for improved
 shelf-life)

IT Interleukin 3
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (fusion protein with G-CSF; albumin fusion

- proteins with therapeutic proteins for improved shelf-life)
- IT Interleukin 6
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(fusion proteins with diphtheria toxin or Pseudomonas exotoxin; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gene patched; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Neurotrophic factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(glial-derived; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interferons
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(interferon α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(interferon-induced, 10; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Animal cell
(mammalian, recombinant expression host; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(noggins; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pC4:HSA, for mammalian cell expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pPPC0005, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pScCHSa, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pScNHSA, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Hemopoietins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(progenipoietin; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Hemopoietins
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(promegapoietin; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Saccharomyces cerevisiae
Yeast
(recombinant expression host; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

- IT Antigens
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(retinal S-; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT **Albumins, biological studies**
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(serum; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Genetic element
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(signal sequence, for improved secretion in yeast or mammalian cells; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Antibodies
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(single chain; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Hedgehog protein
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(sonic; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(therapeutic; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tie-2; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Complement receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(type 1; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Collagens, biological studies
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(type II; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interferons
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(τ ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interferons
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Transforming growth factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(β_1 -; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Transforming growth factors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic

use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β2-; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)

IT Transforming growth factors
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β3-; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)

IT Interferons
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (γ; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)

IT 139691-92-2P, Serine proteinase inhibitor
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (1; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)

IT 9001-91-6DP, Lys-plasminogen, de-(1-76) derivs.
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (Lys-plasminogen; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)

IT 9001-42-7P, α-Glucosidase 9002-01-1P, Streptokinase 9002-12-4P,
 Urate oxidase 9002-61-3P, Chorionic gonadotropin 9002-67-9P,
 Luteinizing hormone 9002-68-0P, FSH 9002-69-1P, Relaxin 9002-72-6P,
 Growth hormone 9003-98-9P, DNase 9004-10-8P, Insulin, biological
 studies 9007-92-5P, Glucagon, biological studies 9014-42-0P,
 Thrombopoietin 9015-68-3P, Asparaginase 9025-35-8P,
 α-Galactosidase 9026-93-1P, Adenosine deaminase 9035-55-6P,
 Adiposin 9039-53-6P, Urokinase 9040-61-3P, Staphylokinase
 9054-89-1DP, Superoxide dismutase, **fusion** protein with botulin
 9061-61-4P, Nerve growth factor 9073-56-7P, α-L-Iduronidase
 9088-41-9P, Kunitz proteinase inhibitor 11096-26-7P, Erythropoietin
 37228-64-1P, β-Glucocerebrosidase 42616-25-1P, Methioninase
 55354-43-3P, Arylsulfatase B 62229-50-9P, Epidermal growth factor
 67763-96-6P, Insulin-like growth factor 1 76901-00-3P, Platelet
 activating factor acetylhydrolase 82707-54-8P, Neprilysin 83652-28-2P,
 Calcitonin gene-related peptide 83869-56-1P, GM-CSF 86090-08-6P,
 Angiostatin 99149-95-8P, Saruplase 104625-48-1P, Activin A
 105844-41-5P, Plasminogen activator inhibitor 106096-92-8DP, Acidic
 fibroblast growth factor, **fusion** protein with Pseudomonas
 exotoxin 106096-92-8P 106096-93-9P, Fibroblast growth factor 2
 107231-12-9DP, Botulin, **fusion** protein with superoxide dismutase
 116036-70-5P, Fibrolase 130939-66-1P, Neurotrophin 3 139639-23-9P,
 Tissue-type plasminogen activator 143011-72-7P, G-CSF 145137-38-8P,
 Desmoteplase 153858-68-5P, Contortrostatin 157857-21-1P, Maspin
 163658-39-7P, Prosaptide 169494-85-3P, Leptin 186270-49-5P,
 Angiopoietin 1 194368-66-6P, Angiopoietin 2 194554-71-7P, Tissue
 factor pathway inhibitor 195009-21-3P, Glial growth factor 2
 196488-72-9P, Ranpirnase 197980-93-1P, Pigment epithelium-derived factor
 205944-50-9P, Osteoprotegerin 244019-30-5P, Vascular endothelial growth
 factor 1 320336-96-7P, Kistrin 362605-29-6P, Keratinocyte growth
 factor 1
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**albumin fusion** proteins with therapeutic proteins
 for improved shelf-life)

IT 9000-95-7P, Apyrase
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (ecto-; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)

IT 9002-79-3P, MSH
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (fusion products with diphtheria toxin; **albumin**
 fusion proteins with therapeutic proteins for improved shelf-life)

IT 127361-02-8DP, **Albumin** (human blood serum clone HSA-II/HSA-I-A protein moiety reduced), full-length or subfragment **fusion** products
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (nucleotide sequence; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT 131748-18-0 156163-00-7 217893-77-1, GenBank A63614 217893-78-2,
 GenBank A63615 217893-79-3, GenBank A63616 217893-80-6, GenBank A63617
 217893-81-7, GenBank A63618 217893-82-8, GenBank A63619 217893-83-9,
 GenBank A63620 217893-84-0, GenBank A63621 217893-85-1, GenBank A63622
 217893-86-2, GenBank A63624 217893-89-5, GenBank A63627 217893-90-8,
 GenBank A63628 217893-91-9, GenBank A63629 217893-92-0, GenBank A63630
 367319-52-6 367319-53-7 367319-54-8 367319-55-9 367319-56-0
 367319-58-2 367319-59-3 367319-60-6 367319-61-7 367319-62-8
 367319-63-9 367319-64-0 367319-65-1 367319-66-2
 RL: PRP (Properties)
 (unclaimed nucleotide sequence; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT 229477-44-5 244008-03-5, PN: WO9947540 SEQID: 3 unclaimed DNA
 244008-06-8, PN: WO9947540 SEQID: 4 unclaimed DNA 244008-07-9, PN:
 WO9947540 SEQID: 5 unclaimed DNA 244008-08-0, PN: WO9947540 SEQID: 6
 unclaimed DNA 244008-09-1, PN: WO9947540 SEQID: 7 unclaimed DNA
 244008-12-6, 8: PN: WO0183510 SEQID: 8 unclaimed DNA 244008-13-7, PN:
 WO9947540 SEQID: 9 unclaimed DNA 244008-14-8, PN: WO9947540 SEQID: 10
 unclaimed DNA 367273-46-9 367273-47-0 367273-48-1 370571-84-9
 RL: PRP (Properties)
 (unclaimed sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)

IT 114949-22-3P, Activin
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β c; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)

L35 ANSWER 8 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN
 ÄN 2001:781077 HCPLUS
 DN 135:348849
 ED Entered STN: 26 Oct 2001
 TI **Albumin fusion** proteins with therapeutic proteins for
 improved shelf-life
 IN Rosen, Craig A.; Haseltine, William A.
 PA Human Genome Sciences, Inc., USA
 SO PCT Int. Appl., 413 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C12N
 CC 63-3 (Pharmaceuticals)
 Section cross-reference(s): 3, 15

FAN.CNT 7

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001079442	A2	20011025	WO 2001-US11850	20010412
	WO 2001079442	A3	20020606		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,			

HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
 LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
 RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ,
 VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 AU 2001064563 A5 20011030 AU 2001-64563 20010412
 EP 1276849 A2 20030122 EP 2001-938994 20010412
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 US 2003125247 A1 20030703 US 2001-833041 20010412
 US 2003171267 A1 20030911 US 2001-833117 20010412
 US 2003199043 A1 20031023 US 2001-832501 20010412
 JP 2003531590 T2 20031028 JP 2001-577426 20010412
 US 2003219875 A1 20031127 US 2001-833118 20010412
 US 2004010134 A1 20040115 US 2001-833245 20010412
 PRAI US 2000-229358P P 20000412
 US 2000-199384P P 20000425
 US 2000-256931P P 20001221
 WO 2001-US11850 W 20010412

AB The present invention encompasses **fusion proteins of albumin** with various therapeutic proteins, and in particular various antibodies. Therapeutic proteins may be stabilized to extend the shelf-life, and/or to retain the therapeutic protein's activity for extended periods of time in solution, in vitro and/or in vivo, by genetically or chemically fusing or conjugating the therapeutic protein to **albumin** or a fragment or variant of **albumin**. Use of **albumin fusion proteins** may also reduce the need to formulate the protein solns. with large excesses of carrier proteins to prevent loss of therapeutic proteins due to factors such as binding to the container. Nucleic acid mols. encoding the **albumin fusion proteins** of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the **albumin fusion proteins** of the invention and using these nucleic acids, vectors, and/or host cells. Thus, plasmid vectors are constructed in which DNA encoding the desired therapeutic protein may be inserted for expression of the **albumin fusion proteins** in yeast (pPPC0005) and mammalian cells (pC4:HSA). Yeast-derived signal sequences from *Saccharomyces cerevisiae* invertase SUC2 gene, or the stanniocalcin or native human serum **albumin** signal peptides, are used for secretion in yeast or mammalian systems, resp. Thus, the **fusion product** of human growth hormone with residues 1-387 of human serum **albumin** retains essentially intact biol. activity after 5 wk of incubation in tissue culture media at 37°, whereas recombinant human growth hormone used as control lost its biol. activity in the first week. Although the potency of the **albumin fusion proteins** is slightly lower than the unfused counterparts in rapid bioassays, their biol. stability results in much higher biol. activity in the longer term in vitro assay or in vivo assays. Addnl., the present invention encompasses pharmaceutical compns. comprising **albumin fusion proteins** and methods of treating, preventing, or ameliorating diseases, disorders or conditions using **albumin fusion proteins** of the invention.

ST **albumin fusion therapeutic protein shelflife**

IT Antigens

RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (17-1A, antibodies to; **albumin fusion proteins** with therapeutic proteins for improved shelf-life)

IT Proteins, specific or class

RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (B7.2, antibodies to; **albumin fusion proteins** with

- therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(CA125, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT CD antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(CD147, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT CD antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(CD33, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT CD antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(CD48, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT CD antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(CD52, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT CD antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(CD6, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Immunoglobulins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(E, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(HLA-DR, antibodies to; **albumin fusion** proteins
with therapeutic proteins for improved shelf-life)
- IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(HM1.24, antibodies to; **albumin fusion** proteins
with therapeutic proteins for improved shelf-life)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(ICAM-1 (intercellular adhesion mol. 1), antibodies to; **albumin fusion**
proteins with therapeutic proteins for improved
shelf-life)
- IT Immunoglobulin receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(IgG type I, antibodies to; **albumin fusion** proteins
with therapeutic proteins for improved shelf-life)
- IT Selectins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(L-, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Integrins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(LPAM-1 (lymphocyte Peyer's patch high endothelial venule adhesion mol.
1), antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Blood-group substances
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(Lex, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Blood-group substances
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(Ley, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)

- IT Immunoglobulins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(M, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MHC (major histocompatibility complex), class I, antibodies to;
albumin fusion proteins with therapeutic proteins for
improved shelf-life)
- IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MHC (major histocompatibility complex), class II, antibodies to;
albumin fusion proteins with therapeutic proteins for
improved shelf-life)
- IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(NogoA, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(Nsf2, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Glycoproteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(P170, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(SC-1, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(SF-25, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(SSEA-1 (stage-specific embryonic antigen 1), antibodies to;
albumin fusion proteins with therapeutic proteins for
improved shelf-life)
- IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(TAG-72 (tumor-associated glycoprotein 72), antibodies to; **albumin**
fusion proteins with therapeutic proteins for improved
shelf-life)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(VCAM-1, antibodies to; **albumin fusion** proteins
with therapeutic proteins for improved shelf-life)
- IT Drug delivery systems
Gene therapy
 Molecular cloning
 (**albumin fusion** proteins with therapeutic proteins
 for improved shelf-life)
- IT Antibodies
Cell adhesion molecules
Cytokines
Enzymes, biological studies
 Fusion proteins (chimeric proteins)
Growth factors, animal
Immunoglobulins
Interferons
Synthetic gene
Tumor necrosis factor receptors

- RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**albumin fusion** proteins with therapeutic proteins
for improved shelf-life)
- IT Angiogenic factors
CD14 (antigen)
CD2 (antigen)
CD20 (antigen)
CD22 (antigen)
CD3 (antigen)
CD30 (antigen)
CD38 (antigen)
CD4 (antigen)
CD40 (antigen)
CD44 (antigen)
CD45 (antigen)
CD5 (antigen)
CD8 (antigen)
CD80 (antigen)
CD80 (antigen)
CTLA-4 (antigen)
Carcinoembryonic antigen
Epidermal growth factor receptors
Fas antigen
Integrins
Interleukin 4 receptors
Interleukin 5
LFA-1 (antigen)
Mucins
TCR (T cell receptors)
Transferrin receptors
neu (receptor)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Mucins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(episialins, antibodies to; **albumin fusion** proteins
with therapeutic proteins for improved shelf-life)
- IT Signal peptides
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(for improved secretion in yeast or mammalian cells; **albumin**
fusion proteins with therapeutic proteins for improved
shelf-life)
- IT Glycoproteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gD, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Envelope proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gp120env, antibodies to; **albumin fusion** proteins
with therapeutic proteins for improved shelf-life)
- IT Glycoproteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gpII, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Animal cell
(mammalian, recombinant expression host; **albumin**
fusion proteins with therapeutic proteins for improved
shelf-life)
- IT Agglutinins and Lectins
RL: BSU (Biological study, unclassified); BIOL (Biological study)

- (mannan-binding, antibodies to; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Antibodies
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monoclonal; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pC4:HSA, for mammalian cell expression; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(ppPC0005, for yeast expression; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pScCHSA, for yeast expression; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
(pScNHSA, for yeast expression; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Interleukin 6 receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(receptor-associated glycoprotein gp130, antibodies to; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Saccharomyces cerevisiae
Yeast
(recombinant expression host; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Albumins, biological studies
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(serum; **albumin fusion** proteins with therapeutic
proteins for improved shelf-life)
- IT Genetic element
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(signal sequence, for improved secretion in yeast or mammalian cells;
albumin fusion proteins with therapeutic proteins for
improved shelf-life)
- IT Antibodies
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(single chain; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Venoms
(snake, antibodies to; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(therapeutic; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)
- IT Globulins, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(thymocyte, antibodies to; **albumin fusion** proteins
with therapeutic proteins for improved shelf-life)
- IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(tumor-associated, antibodies to; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)
- IT Interleukin 2 receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)

(α -chain, antibodies to; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Interferons
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; **albumin fusion** proteins with therapeutic
 proteins for improved shelf-life)

IT Integrins
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (α IIb β 3, antibodies to; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Vitronectin receptors
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (α v β 3, antibodies to; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Integrins
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (α 4 β 1, antibodies to; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT Chemokine receptors
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (β chemokine receptor CCR5, antibodies to; **albumin**
fusion proteins with therapeutic proteins for improved
 shelf-life)

IT Integrins
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (β 2, antibodies to; **albumin fusion** proteins
 with therapeutic proteins for improved shelf-life)

IT 9002-67-9P, Luteinizing hormone 9002-68-0P, FSH 9002-72-6P, Growth
 hormone 9004-10-8P, Insulin, biological studies 11096-26-7P,
 Erythropoietin 67763-96-6P, Insulin-like growth factor 1 83869-56-1P,
 GM-CSF 143011-72-7P, G-CSF
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**albumin fusion** proteins with therapeutic proteins
 for improved shelf-life)

IT 156586-89-9
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (**albumin fusion** proteins with therapeutic proteins
 for improved shelf-life)

IT 11016-39-0, Properdin 19600-01-2, Ganglioside GM2 20830-75-5, Digoxin
 99085-47-9, CD55 antigen
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (antibodies to; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)

IT 127361-02-8DP, **Albumin** (human blood serum clone HSA-II/HSA-I-A
 protein moiety reduced), full-length or subfragment **fusion**
 products
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (nucleotide sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)

IT 155945-98-5, PN: US5962255 SEQID: 59 unclaimed DNA 156163-00-7
 167728-69-0 167728-70-3 167728-71-4 167728-72-5 167728-73-6
 167731-70-6 167731-74-0, PN: US5962255 SEQID: 56 unclaimed DNA
 167731-75-1, PN: US5962255 SEQID: 57 unclaimed DNA 167731-76-2, PN:
 US5962255 SEQID: 58 unclaimed DNA 167731-77-3, PN: US5962255 SEQID: 60
 unclaimed DNA 167731-78-4, PN: US5962255 SEQID: 61 unclaimed DNA
 167731-79-5 167731-80-8 167731-81-9 167732-10-7 167732-11-8, PN:
 US5962255 SEQID: 551 unclaimed DNA 167732-12-9 167732-13-0
 167732-14-1, PN: US5962255 SEQID: 554 unclaimed DNA 167732-15-2, PN:
 US5962255 SEQID: 555 unclaimed DNA 167732-16-3 167732-17-4
 167732-18-5 167732-19-6, PN: US5962255 SEQID: 98 unclaimed DNA

167732-20-9, PN: US5962255 SEQID: 572 unclaimed DNA 167732-21-0
 167732-22-1, PN: US5962255 SEQID: 574 unclaimed DNA 195164-37-5
 217893-77-1, GenBank A63614 217893-78-2, GenBank A63615 217893-79-3,
 GenBank A63616 217893-80-6, GenBank A63617 217893-81-7, GenBank A63618
 217893-82-8, GenBank A63619 217893-83-9, GenBank A63620 217893-84-0,
 GenBank A63621 217893-85-1, GenBank A63622 217893-86-2, GenBank A63624
 217893-89-5, GenBank A63627 217893-90-8, GenBank A63628 217893-91-9,
 GenBank A63629 217893-92-0, GenBank A63630 367319-52-6 367319-53-7
 367319-54-8 367319-55-9 367319-56-0 367319-57-1 367319-58-2
 367319-59-3 367319-60-6 367319-61-7 367319-62-8 367319-63-9
 367319-64-0 367319-65-1 367319-66-2

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion**

proteins with therapeutic proteins for improved shelf-life)

IT 122024-47-9 131748-18-0 229477-44-5 244008-03-5, PN: WO9947540
 SEQID: 3 unclaimed DNA 244008-06-8, PN: WO9947540 SEQID: 4 unclaimed DNA
 244008-07-9, PN: WO9947540 SEQID: 5 unclaimed DNA 244008-08-0, PN:
 WO9947540 SEQID: 6 unclaimed DNA 244008-09-1, PN: WO9947540 SEQID: 7
 unclaimed DNA 244008-12-6, 8: PN: WO0183510 SEQID: 8 unclaimed DNA
 244008-13-7, PN: WO9947540 SEQID: 9 unclaimed DNA 244008-14-8, PN:
 WO9947540 SEQID: 10 unclaimed DNA 367273-46-9 367273-47-0 367273-48-
 1

RL: PRP (Properties)

(unclaimed sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)

L35 ANSWER 9 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN

AN 2001:780938 HCPLUS

DN 135:322686

ED Entered STN: 26 Oct 2001

TI **Albumin fusion** proteins with therapeutic proteins for
 improved shelf-life

IN Rosen, Craig A.; Sadeghi, Homayoun; Prior, Christopher P.;
 Turner, Andrew John

PA Human Genome Sciences, Inc., USA; Principia Pharmaceutical
 Corporation

SO PCT Int. Appl., 328 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07K001-00

ICS A01N037-18

CC 63-3 (Pharmaceuticals)

Section cross-reference(s): 3, 15

FAN.CNT 7

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001079258	A1	20011025	WO 2001-US12008	20010412
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP	1274720	A1	20030115	EP 2001-932549	20010412
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
US	2003125247	A1	20030703	US 2001-833041	20010412
US	2003171267	A1	20030911	US 2001-833117	20010412
JP	2003530838	T2	20031021	JP 2001-576855	20010412

US 2003199043	A1	20031023	US 2001-832501	20010412
US 2003219875	A1	20031127	US 2001-833118	20010412
US 2004010134	A1	20040115	US 2001-833245	20010412
PRAI US 2000-229358P	P	20000412		
US 2000-199384P	P	20000425		
US 2000-256931P	P	20001221		
WO 2001-US12008	W	20010412		

AB The present invention encompasses **fusion proteins** of **albumin** with various therapeutic proteins, and in particular, with interleukin 2, calcitonin, growth hormone-releasing factor, interferon β , parathyroid hormone, and insulin-like growth factor 1. Therapeutic proteins may be stabilized to extend the shelf-life, and/or to retain the therapeutic protein's activity for extended periods of time in solution, in vitro and/or in vivo, by genetically or chemical **fusing** or conjugating the therapeutic protein to **albumin** or a fragment or variant of **albumin**. Use of **albumin fusion** proteins may also reduce the need to formulate the protein solns. with large excesses of carrier proteins to prevent loss of therapeutic proteins due to factors such as binding to the container. Nucleic acid mols. encoding the **albumin fusion** proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the **albumin fusion** proteins of the invention and using these nucleic acids, vectors, and/or host cells. Thus, plasmid vectors are constructed in which DNA encoding the desired therapeutic protein may be inserted for expression of the **albumin fusion** proteins in yeast (pPPC0005) and mammalian cells (pC4:HSA). Yeast-derived signal sequences from *Saccharomyces cerevisiae* invertase SUC2 gene, or the stanniocalcin or native human serum **albumin** signal peptides, are used for secretion in yeast or mammalian systems, resp. Thus, the **fusion** product of human growth hormone with residues 1-387 of human serum **albumin** retains essentially intact biol. activity after 5 wk of incubation in tissue culture media at 37°, whereas recombinant human growth hormone used as control lost its biol. activity in the first week. Although the potency of the **albumin fusion** proteins is slightly lower than the unfused counterparts in rapid bioassays, their biol. stability results in much higher biol. activity in the longer term in vitro assay or in vivo assays. Addnl., the present invention encompasses pharmaceutical compns. comprising **albumin fusion** proteins and methods of treating, preventing, or ameliorating diseases, disorders or conditions using **albumin fusion** proteins of the invention.

ST **albumin fusion** therapeutic protein shelflife

IT Hepatitis
(C, agents for treatment of; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
(Kaposi's sarcoma; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
(acute myelogenous leukemia; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Anti-AIDS agents
Antidiabetic agents
Antirheumatic agents
Drug delivery systems
Gene therapy
Immunosuppressants
Molecular cloning
(**albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Cell adhesion molecules
Cytokines

Enzymes, biological studies
 Fusion proteins (chimeric proteins)
Growth factors, animal
Interferons
Interleukin 2
Synthetic gene
Tumor necrosis factor receptors
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**albumin fusion** proteins with therapeutic proteins
 for improved shelf-life)

IT Signal peptides
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (for improved secretion in yeast or mammalian cells; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Intestine, disease
 (inflammatory, agents for treatment of; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Kidney, neoplasm
Lung, neoplasm
Ovary, neoplasm
 (inhibitors; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
 (kidney; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
 (leukemia; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
 (lung; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Animal cell
 (mammalian, recombinant expression host; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
 (melanoma, metastasis; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
 (melanoma; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
 (non-Hodgkin's lymphoma; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Antitumor agents
 (ovary; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors
 (pC4:HSA, for mammalian cell expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors
 (pPPC0005, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors
 (pScCHSA, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Plasmid vectors
 (pScNHSA, for yeast expression; **albumin fusion**

proteins with therapeutic proteins for improved shelf-life)
 IT Saccharomyces cerevisiae
 Yeast
 (recombinant expression host; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)
 IT Kidney, neoplasm
 (renal-cell carcinoma, metastasis, inhibitors; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)
 IT Antitumor agents
 (renal-cell carcinoma, metastasis; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)
 IT **Albumins, biological studies**
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (serum; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Genetic element
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (signal sequence, for improved secretion in yeast or mammalian cells;
 albumin fusion proteins with therapeutic proteins for improved shelf-life)
 IT Antibodies
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (single chain; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Multiple sclerosis
 (therapeutic agents; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (therapeutic; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Interferons
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT Interferons
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (β ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT 9002-64-6P, Parathyroid hormone 9002-67-9P, Luteinizing hormone
 9002-68-0P, FSH 9002-72-6P, Growth hormone 9004-10-8P, Insulin,
 biological studies 9007-12-9P, Calcitonin 9034-39-3P, Growth
 hormone-releasing factor 11096-26-7P, Erythropoietin 67763-96-6P,
 Insulin-like growth factor 1 83869-56-1P, GM-CSF 143011-72-7P, G-CSF
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT 127361-02-8DP, **Albumin** (human blood serum clone HSA-II/HSA-I-A
 protein moiety reduced), full-length or subfragment **fusion**
 products
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (nucleotide sequence; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
 IT 156163-00-7 217893-77-1, GenBank A63614 217893-78-2, GenBank A63615

217893-79-3, GenBank A63616 217893-80-6, GenBank A63617 217893-81-7,
 GenBank A63618 217893-82-8, GenBank A63619 217893-83-9, GenBank A63620
 217893-84-0, GenBank A63621 217893-85-1, GenBank A63622 217893-86-2,
 GenBank A63624 217893-89-5, GenBank A63627 217893-90-8, GenBank A63628
 217893-91-9, GenBank A63629 217893-92-0, GenBank A63630 244008-03-5,
 PN: WO9947540 SEQID: 3 unclaimed DNA 244008-06-8, PN: WO9947540 SEQID: 4
 unclaimed DNA 244008-07-9, PN: WO9947540 SEQID: 5 unclaimed DNA
 244008-08-0, PN: WO9947540 SEQID: 6 unclaimed DNA 244008-09-1, PN:
 WO9947540 SEQID: 7 unclaimed DNA 244008-12-6, 8: PN: WO0183510 SEQID: 8
 unclaimed DNA 244008-13-7, PN: WO9947540 SEQID: 9 unclaimed DNA
 244008-14-8, PN: WO9947540 SEQID: 10 unclaimed DNA 367319-52-6
 367319-53-7 367319-54-8 367319-55-9 367319-56-0 367319-57-1
 367319-58-2 367319-59-3 367319-60-6 367319-61-7 367319-62-8
 367319-63-9 367319-64-0 367319-65-1 367319-66-2 367319-67-3

RL: PRP (Properties)
 (unclaimed nucleotide sequence; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT 367510-76-7

RL: PRP (Properties)
 (unclaimed protein sequence; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT 131748-18-0 367273-46-9 367273-47-0 367273-48-1

RL: PRP (Properties)
 (unclaimed sequence; **albumin fusion** proteins with
 therapeutic proteins for improved shelf-life)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Beth Israel Hospital Association; WO 9618412 A1 1996 HCPLUS
- (2) Lee; Pharm Dev Tech 1999, V4(2), P269 HCPLUS
- (3) Rhone-Poulenc Rorer S A; WO 9315199 A1 1993 HCPLUS
- (4) Rhone-Poulenc Rorer S A; WO 9315211 A1 1993 HCPLUS
- (5) Takahashi; Peptides 1997, V18(3), P439 HCPLUS
- (6) Yeh; Prc Nat Acad Sci USA 1992, V69, P1904

L35 ANSWER 10 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN

AN 2001:763025 HCPLUS

DN 135:335111

ED Entered STN: 19 Oct 2001

TI **Albumin fusion** proteins with therapeutic proteins for
 improved shelf-life

IN Rosen, Craig A.; Haseltine, William A.

PA Human Genome Sciences, Inc., USA

SO PCT Int. Appl., 2102 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07H021-04

CC 63-3 (Pharmaceuticals)

Section cross-reference(s): 3, 15

FAN.CNT 7

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001077137	A1	20011018	WO 2001-US11988	20010412
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP	1276756	A1	20030122	EP 2001-944114	20010412

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 US 2003125247 A1 20030703 US 2001-833041 20010412
 US 2003171267 A1 20030911 US 2001-833117 20010412
 US 2003199043 A1 20031023 US 2001-832501 20010412
 US 2003219875 A1 20031127 US 2001-833118 20010412
 US 2004010134 A1 20040115 US 2001-833245 20010412
 JP 2004506407 T2 20040304 JP 2001-575607 20010412
 PRAI US 2000-229358P P 20000412
 US 2000-199384P P 20000425
 US 2000-256931P P 20001221
 WO 2001-US11988 W 20010412

AB The present invention encompasses **fusion proteins** of **albumin** with various therapeutic proteins. Therapeutic proteins may be stabilized to extend the shelf-life, and/or to retain the therapeutic protein's activity for extended periods of time in solution, in vitro and/or in vivo, by genetically or chemical fusing or conjugating the therapeutic protein to **albumin** or a fragment or variant of **albumin**. Use of **albumin fusion** proteins may also reduce the need to formulate the protein solns. with large excesses of carrier proteins to prevent loss of therapeutic proteins due to factors such as binding to the container. Nucleic acid mols. encoding the **albumin fusion** proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the **albumin fusion** proteins of the invention and using these nucleic acids, vectors, and/or host cells. Thus, plasmid vectors are constructed in which DNA encoding the desired therapeutic protein may be inserted for expression of the **albumin fusion** proteins in yeast (pPPC0005) and mammalian cells (pC4:HSA). Yeast-derived signal sequences from *Saccharomyces cerevisiae* invertase SUC2 gene, or the stanniocalcin or native human serum **albumin** signal peptides, are used for secretion in yeast or mammalian systems, resp. Thus, the **fusion** product of human growth hormone with residues 1-387 of human serum **albumin** retains essentially intact biol. activity after 5 wk of incubation in tissue culture media at 37°, whereas recombinant human growth hormone used as control lost its biol. activity in the first week. Although the potency of the **albumin fusion** proteins is slightly lower than the unfused counterparts in rapid bioassays, their biol. stability results in much higher biol. activity in the longer term in vitro assay or in vivo assays. Addnl., the present invention encompasses pharmaceutical compns. comprising **albumin fusion** proteins and methods of treating, preventing, or ameliorating diseases, disorders or conditions using **albumin fusion** proteins of the invention.

ST **albumin fusion** therapeutic protein shelflife

IT Drug delivery systems

Gene therapy

Molecular cloning

(**albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT Cell adhesion molecules

Cytokines

Enzymes, biological studies

Fusion proteins (chimeric proteins)

Growth factors, animal

Interferons

Synthetic gene

Tumor necrosis factor receptors

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(**albumin fusion** proteins with therapeutic proteins for improved shelf-life)

- IT Signal peptides
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (for improved secretion in yeast or mammalian cells; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Animal cell
 (mammalian, recombinant expression host; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
 (pC4:HSA, for mammalian cell expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
 (pPPC0005, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
 (pScCHSa, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Plasmid vectors
 (pScNHSA, for yeast expression; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Saccharomyces cerevisiae
 Yeast
 (recombinant expression host; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT **Albumins, biological studies**
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (serum; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Genetic element
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (signal sequence, for improved secretion in yeast or mammalian cells; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Antibodies
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (single chain; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Proteins, specific or class
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (therapeutic; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT Interferons
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (α ; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT 9002-67-9P, Luteinizing hormone 9002-68-0P, FSH 9002-72-6P, Growth hormone 9004-10-8P, Insulin, biological studies 11096-26-7P, Erythropoietin 67763-96-6P, Insulin-like growth factor 1 83869-56-1P, GM-CSF 143011-72-7P, G-CSF
 RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**albumin fusion** proteins with therapeutic proteins for improved shelf-life)
- IT 127361-02-8DP, **Albumin** (human blood serum clone HSA-II/HSA-I-A protein moiety reduced), full-length or subfragment **fusion**

products

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (nucleotide sequence; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT 155945-98-5, PN: US5962255 SEQID: 59 unclaimed DNA 156163-00-7
 167728-69-0 167728-70-3 167728-71-4 167728-72-5 167728-73-6
 167731-70-6 167731-74-0, PN: US5962255 SEQID: 56 unclaimed DNA
 167731-75-1, PN: US5962255 SEQID: 57 unclaimed DNA 167731-76-2, PN:
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 unclaimed DNA 167731-78-4, PN: US5962255 SEQID: 61 unclaimed DNA
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 167732-14-1, PN: US5962255 SEQID: 554 unclaimed DNA 167732-15-2, PN:
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 217893-77-1, GenBank A63614 217893-78-2, GenBank A63615 217893-79-3,
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 GenBank A63630 367319-52-6 367319-53-7 367319-54-8 367319-55-9
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 367319-61-7 367319-62-8 367319-64-0 367319-65-1 367319-66-2
 367985-08-8

RL: PRP (Properties)

(unclaimed nucleotide sequence; **albumin fusion** proteins with therapeutic proteins for improved shelf-life)

IT 135688-15-2, Complement C1q (human clone pC1qA8.0E A-chain precursor protein moiety reduced) 151187-86-9 160405-14-1 160405-30-1
 161477-27-6 180191-50-8 208473-02-3 208668-41-1 208885-10-3,
 Gremlin (human) 209402-85-7 211509-29-4, Protein (human clone KIAA0626 reduced) 212701-83-2, Antigen JTT.1 (human) 213471-70-6, Protein zsig32 (human) 213537-31-6 221369-74-0 222536-56-3 222614-92-8
 222963-77-1, Protein (human brain gene KIAA0879) 225371-37-9
 227183-97-3 228856-39-1 228859-29-8, Protein (human gene PG1)
 229483-48-1 229483-74-3 229965-62-2 234086-26-1 235768-74-8
 236732-55-1 243122-23-8 243122-49-8 244028-96-4 244295-44-1
 249910-22-3 250154-03-1 251929-91-6 252050-85-4 252051-18-6
 252051-68-6 252366-50-0 252366-55-5 253418-72-3 253418-75-6
 253418-83-6 253419-18-0 253419-34-0 253419-41-9 253603-07-5
 256325-28-7 257854-54-9 259163-54-7 259163-79-6 260382-31-8
 270051-56-4, Hydrolase (human Incyte clone 1297034) 270051-58-6,
 Hydrolase (human Incyte clone 1702211) 270054-17-6, Platelet-derived growth factor D (human) 271753-29-8 277336-39-7 277762-05-7
 278626-74-7, Osteoglycin (human gene OGN) 287216-11-9 291585-61-0
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 300429-08-7 300431-40-7 300619-65-2 300620-75-1 301252-55-1
 301257-58-9 303071-71-8 309763-61-9 312976-96-8 314326-43-7
 318300-05-9, Protein (human clone PSEC0021) 318301-14-3, Protein (human clone PSEC0133) 318301-24-5, Protein (human clone PSEC0143)
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326502-32-3	326502-33-4	326502-34-5	326502-35-6	326502-36-7
326502-37-8	326502-38-9	326502-39-0	326502-40-3	326502-41-4
326502-42-5	326502-43-6	326598-27-0	326598-44-1	326598-72-5
326598-76-9	326598-78-1	326598-79-2	326598-80-5	326598-81-6
326598-82-7	326598-84-9	326833-56-1	326833-60-7	326833-66-3
326930-69-2, Protein (human clone PLACE1010800)	(human clone MAMMA1001388)	328596-84-5	328596-85-6	328596-86-7
328596-87-8	328596-88-9	328596-89-0	328596-90-3	328596-91-4
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328596-97-0	328596-98-1	328596-99-2	328597-00-8	328597-01-9
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328908-57-2	328908-94-7	328909-30-4	328909-65-5	328910-79-8
328911-22-4	328911-58-6	328911-95-1	328912-59-0	328912-60-3
328912-61-4	330226-44-3	330226-45-4	330226-46-5	330226-47-6
330226-48-7	330226-49-8	330226-50-1	330226-51-2	330226-52-3
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330226-58-9	330226-59-0	330226-60-3	330226-61-4	330226-62-5
330226-63-6	330226-64-7	330226-65-8	330226-66-9	330226-67-0
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330226-73-8	330226-74-9	330226-75-0		

RL: PRP (Properties)

(unclaimed protein sequence; albumin fusion

proteins with therapeutic proteins for improved shelf-life)

IT	330226-76-1	330226-77-2	330226-78-3	330226-79-4	330226-80-7
	330226-81-8	330226-82-9	330226-83-0	330226-84-1	330226-85-2
	330226-86-3	330226-87-4	330226-88-5	330226-89-6	330226-90-9
	330437-94-0	330437-95-1	330437-96-2	330437-97-3	330437-98-4
	330437-99-5	332903-21-6	334569-82-3	335366-30-8	337542-34-4
	337542-35-5	337542-36-6	337542-37-7	337542-38-8	337542-39-9
	337542-40-2	337542-41-3	337542-42-4	337542-43-5	337542-44-6
	337542-45-7	337542-46-8	337542-47-9	337542-48-0	337542-49-1
	337542-50-4	337542-51-5	337542-52-6	337542-53-7	337542-54-8
	337542-55-9	337542-56-0	337542-57-1	337542-58-2	337542-59-3
	337542-60-6	337961-06-5	337961-07-6	337961-09-8	337961-10-1
	337961-60-1	337961-74-7	337961-77-0	337961-78-1	337961-79-2
	337961-81-6	337961-82-7	337961-85-0	337961-86-1	337961-87-2
	337961-88-3	337986-88-6	337986-89-7	337986-90-0	337986-91-1
	337986-92-2	337986-93-3	337986-94-4	337986-95-5	337986-96-6
	337986-97-7	337986-98-8	338412-71-8	338412-97-8	338413-32-4
	338413-67-5	338413-99-3	338414-30-5	338414-74-7	338415-04-6
	338415-31-9	339139-34-3	339139-35-4	339139-36-5	339139-37-6
	339139-38-7	339139-39-8	339139-40-1	339139-41-2	339139-42-3
	339139-43-4	339139-44-5	339139-45-6	339140-43-1	339140-44-2
	339140-45-3	339140-46-4	339140-47-5	339140-48-6	339140-49-7
	339140-50-0	339140-51-1	339140-52-2	339140-53-3	339140-54-4
	339140-55-5	339140-56-6	339140-57-7	339140-58-8	339140-59-9
	339140-60-2	339140-61-3	339140-62-4	339140-63-5	339140-64-6
	339140-65-7	339140-66-8	339140-67-9	339140-68-0	339140-69-1
	339140-70-4	339140-71-5	339140-72-6	339140-73-7	339140-74-8
	339143-87-2	339143-88-3	339143-89-4	339143-90-7	339143-91-8
	339143-92-9	339143-93-0	339143-94-1	339143-95-2	339143-96-3
	339143-97-4	339143-98-5	339143-99-6	339144-00-2	339144-01-3
	339144-02-4	339144-03-5	339144-04-6	339144-05-7	339144-06-8
	339144-07-9	339144-08-0	339144-09-1	339144-10-4	339144-11-5
	339144-12-6	339144-13-7	339144-14-8	339144-15-9	339144-16-0
	339144-17-1	339144-18-2	339144-19-3	339144-20-6	339144-21-7
	339144-22-8	339144-23-9	339144-24-0	339144-25-1	339144-26-2
	339144-27-3	339180-59-5	339180-64-2	339180-65-3	339180-66-4
	339180-67-5	339180-68-6	339180-70-0	339180-71-1	339180-72-2

339180-73-3	339180-74-4	339180-75-5	339180-77-7	339180-79-9
339180-80-2	339180-84-6	339181-12-3	339181-13-4	339181-14-5
339181-15-6	339181-16-7	339181-18-9	339181-19-0	339181-21-4
339181-40-7	339181-41-8	339181-42-9	339181-43-0	339181-49-6
339181-58-7	339181-81-6	339182-04-6	339182-61-5	339182-63-7
339182-72-8	339182-83-1	339213-16-0	339213-17-1	339213-18-2
339213-19-3	339213-20-6	339213-21-7	339213-22-8	339213-23-9
339213-24-0	339213-25-1	339213-26-2	339213-27-3	339213-28-4
339213-29-5	339213-30-8	339213-31-9	339213-32-0	339213-33-1
339213-34-2	339213-35-3	339213-36-4	339213-37-5	339213-38-6
339213-39-7	339213-40-0	339213-41-1	339213-42-2	339213-43-3
339213-44-4	339213-45-5	339213-46-6	339213-47-7	339216-27-2

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT	339216-28-3	339216-29-4	339216-30-7	339216-31-8	339216-32-9
	339216-33-0	339216-34-1	339216-35-2	339216-36-3	339216-37-4
	339216-38-5	339216-39-6	339216-40-9	339216-41-0	339216-42-1
	339216-43-2	339216-44-3	339216-45-4	339216-46-5	339216-47-6
	339216-48-7	339216-49-8	339216-50-1	339216-51-2	339216-52-3
	339216-53-4	339216-54-5	339216-55-6	339216-56-7	339216-57-8
	339216-58-9	339216-59-0	339216-60-3	339216-61-4	339216-62-5
	339216-63-6	339216-64-7	339216-65-8	339216-66-9	339216-67-0
	339216-68-1	339301-12-1	339301-15-4	339301-17-6	339301-82-5
	339301-83-6	339301-84-7	339301-90-5	339302-01-1	339302-11-3
	339302-22-6	339302-36-2	339302-46-4	339302-57-7	339302-68-0
	339302-78-2	339302-95-3	339303-22-9	339596-82-6	339596-83-7
	339596-84-8	339596-85-9	339596-86-0	339596-87-1	339596-88-2
	339596-89-3	339596-90-6	339596-91-7	339596-92-8	339596-95-1
	339596-96-2	339596-97-3	339596-99-5	339597-00-1	339597-01-2
	339597-02-3	339597-03-4	339597-04-5	339597-05-6	339597-06-7
	339597-07-8	339597-08-9	339597-09-0	339597-10-3	339597-11-4
	339597-12-5	339597-13-6	339597-14-7	339602-78-7	339602-79-8
	339602-80-1	339602-81-2	339602-82-3	339602-83-4	339602-84-5
	339602-85-6	339602-86-7	339602-87-8	339602-88-9	339602-89-0
	339602-90-3	339602-91-4	339602-92-5	339602-93-6	339602-94-7
	339602-95-8	339602-96-9	339602-97-0	339602-98-1	339602-99-2
	339603-00-8	339603-01-9	339603-02-0	339603-03-1	339603-04-2
	339603-05-3	339603-06-4	339603-07-5	339603-08-6	339603-09-7
	339603-65-5	339603-66-6	339603-67-7	339603-68-8	339603-69-9
	339603-70-2	339603-71-3	339603-72-4	339603-73-5	339603-74-6
	339603-75-7	339603-76-8	339603-77-9	339603-78-0	339603-79-1
	339605-81-1	339605-82-2	339605-83-3	339605-84-4	339605-86-6
	339605-87-7	339605-88-8	339605-89-9	339605-90-2	339605-91-3
	339605-92-4	339605-93-5	339605-94-6	339605-95-7	339605-96-8
	339605-97-9	339605-98-0	339605-99-1	339606-00-7	339606-01-8
	339607-60-2	339607-61-3	339607-62-4	339607-63-5	339607-64-6
	339607-65-7	339607-66-8	339607-67-9	339607-68-0	339607-69-1
	339607-70-4	339609-39-1	339609-40-4	339609-41-5	339609-42-6
	339609-43-7	339609-44-8	339609-45-9	339609-46-0	339609-47-1
	339609-48-2	339609-49-3	339609-50-6	339609-51-7	339609-52-8
	339609-53-9	339609-54-0	339609-55-1	339609-56-2	339609-58-4
	339609-59-5	339609-60-8	339609-61-9	339609-62-0	339610-43-4
	339610-44-5	339610-45-6	339610-46-7	339610-47-8	339610-48-9
	339610-49-0	339610-50-3	339610-51-4	339610-52-5	339610-53-6
	339610-54-7	339610-55-8	339610-56-9	339610-57-0	339610-58-1
	339610-59-2	339610-60-5	339610-61-6	339610-62-7	339610-63-8
	339610-64-9	339611-78-8	339611-79-9	339611-80-2	339611-81-3
	339611-82-4	339611-83-5	339611-84-6	339611-85-7	339611-86-8
	339611-87-9	339611-88-0	339611-89-1	339611-90-4	339611-91-5
	339611-92-6	339611-93-7	339611-94-8	339611-95-9	339611-96-0
	339611-97-1	339611-98-2	339611-99-3	339612-00-9	339612-01-0
	339612-89-4	339612-90-7	339612-91-8	339612-92-9	339612-93-0

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT	339612-94-1	339612-95-2	339612-96-3	339612-97-4	339612-98-5
	339612-99-6	339613-00-2	339613-01-3	339613-02-4	339613-03-5
	339613-04-6	339613-05-7	339613-06-8	339613-07-9	339613-08-0
	339613-88-6	339613-89-7	339613-90-0	339613-91-1	339613-92-2
	339613-94-4	339613-95-5	339613-96-6	339613-97-7	339613-98-8
	339613-99-9	339614-00-5	339614-01-6	339614-02-7	339614-03-8
	339614-04-9	339614-05-0	339614-06-1	339614-07-2	339614-08-3
	339614-09-4	339614-10-7	339614-11-8	339614-12-9	339614-13-0
	339614-14-1	339614-15-2	339614-16-3	339614-17-4	339614-18-5
	339614-19-6	339614-20-9	339614-21-0	339614-22-1	339614-23-2
	339614-24-3	339616-76-1	340011-23-6	340011-25-8	340011-27-0
	340011-29-2	340011-38-3	340011-41-8	340011-73-6	340011-77-0
	340012-12-6	340012-94-4	340012-96-6	340012-99-9	340013-00-5
	340013-18-5	340013-32-3	340013-72-1	340013-83-4	340013-84-5
	340013-85-6	340013-87-8	340013-89-0	340013-91-4	340014-06-4
	340014-08-6	340014-10-0	340014-11-1	340014-12-2	340014-15-5
	340014-16-6	340014-17-7	340014-20-2	340014-21-3	340014-23-5
	340014-24-6	340014-26-8	340014-29-1	340014-37-1	340014-90-6
	340015-01-2	340015-03-4	340015-15-8	340015-19-2	340015-23-8
	340015-28-3	340015-29-4	340015-30-7	340015-35-2	340015-38-5
	340015-40-9	340015-42-1	340015-45-4	340015-46-5	340015-47-6
	340015-48-7	340015-49-8	340015-50-1	340015-51-2	340015-52-3
	340015-53-4	340015-54-5	340015-55-6	340015-56-7	340015-62-5
	340016-14-0	340016-16-2	340016-18-4	340016-37-7	340016-40-2
	340016-43-5	340016-44-6	340016-49-1	340016-55-9	340016-64-0
	340016-66-2	340016-75-3	340016-84-4	340016-87-7	340016-94-6
	340016-95-7	340016-96-8	340016-98-0	340017-00-7	340017-04-1
	340017-06-3	340017-08-5	340017-09-6	340017-10-9	340017-11-0
	340017-12-1	340017-13-2	340017-32-5	340017-38-1	340017-39-2
	340018-35-1	340018-80-6	340018-87-3	340018-92-0	340018-93-1
	340018-94-2	340018-95-3	340018-96-4	340019-02-5	340019-04-7
	340019-05-8	340020-74-8	340020-76-0	340020-77-1	340020-78-2
	340020-80-6	340021-34-3	340022-03-9	340022-34-6	340022-78-8
	340023-19-0	340023-31-6	340023-33-8	340023-34-9	340023-35-0
	340023-36-1	340023-37-2	340023-39-4	340023-41-8	340023-42-9
	340023-45-2	340023-46-3	340023-57-6	340023-87-2	340024-09-1
	340024-30-8	340024-35-3	340024-39-7	340024-58-0	340024-79-5
	340026-04-2	340050-60-4	340050-61-5	340050-62-6	340050-63-7
	340050-64-8	340050-65-9	340050-66-0	340050-67-1	340050-68-2
	340050-69-3	340050-70-6	340050-71-7	340050-72-8	340050-73-9
	340050-74-0	340050-75-1	340050-76-2	340050-77-3	340050-78-4
	340050-79-5	340050-80-8	340050-81-9	340050-82-0	340050-83-1
	340050-84-2	340050-85-3	340050-86-4	340050-87-5	340050-88-6
	340050-89-7	340050-90-0	340050-91-1	340050-92-2	340161-11-7
	340161-25-3	340161-26-4	340161-27-5	340161-28-6	340161-29-7
	340161-30-0	340161-47-9	340161-72-0	340161-73-1	340161-74-2
	340161-77-5	340161-78-6	340161-79-7	340161-80-0	340161-89-9
	340161-90-2	340161-91-3	340838-03-1	340838-04-2	340838-05-3

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**
 proteins with therapeutic proteins for improved shelf-life)

IT	340838-06-4	340838-07-5	340838-08-6	340838-09-7	340838-10-0
	340838-11-1	340838-12-2	340838-13-3	340838-14-4	340838-15-5
	340838-16-6	340838-17-7	340838-18-8	340838-19-9	340838-20-2
	340838-21-3	340838-22-4	340838-23-5	340838-24-6	340838-25-7
	340838-26-8	340838-27-9	340839-86-3	340983-53-1	340983-54-2
	341065-94-9	341065-95-0	341065-96-1	341065-97-2	341065-98-3
	341065-99-4	341066-00-0	341066-01-1	341066-02-2	341066-03-3
	341066-04-4	341066-05-5	341066-06-6	341066-07-7	341066-08-8
	341066-09-9	341066-10-2	341066-11-3	341066-12-4	341066-13-5

341066-14-6	341066-15-7	341066-16-8	341066-17-9	341066-18-0
341066-19-1	341066-20-4	341066-21-5	341066-22-6	341066-23-7
341066-24-8	341066-25-9	341066-26-0	341066-27-1	341066-28-2
341066-29-3	341066-30-6	341523-23-7	341523-25-9	343901-47-3
346013-08-9	352395-92-7	352395-93-8	352395-94-9	352395-95-0
352395-96-1	352395-97-2	352395-99-4	352396-00-0	352396-01-1
352396-02-2	352396-03-3	352396-04-4	352396-05-5	352396-06-6
352396-07-7	352396-08-8	352396-09-9	352396-10-2	352396-11-3
352396-12-4	352396-13-5	352396-14-6	352396-15-7	352396-16-8
352396-17-9	352396-18-0	352396-19-1	352396-22-6	352396-23-7
352396-24-8	352396-25-9	352396-26-0	352396-27-1	352396-28-2
352396-29-3	352396-30-6	352396-31-7	352396-32-8	352401-89-9
352433-90-0	352434-21-0	352434-34-5	353341-91-0	353341-92-1
353341-93-2	353341-94-3	353341-95-4	353341-96-5	353341-97-6
353341-98-7	353341-99-8	353342-00-4	353342-01-5	353342-02-6
353342-03-7	353342-04-8	353342-05-9	353342-06-0	353342-07-1
353342-08-2	353342-09-3	353342-10-6	353342-11-7	353520-00-0
353520-07-7	353552-65-5	355045-10-2	368438-96-4	368441-51-4
368441-54-7	368441-64-9	368441-73-0	368441-93-4	368442-77-7
368442-78-8	368442-79-9	368442-83-5	368442-84-6	368442-85-7
368442-86-8	368442-93-7	368442-97-1	368442-98-2	368442-99-3
368443-00-9	368443-01-0	368443-02-1	368443-11-2	368443-20-3
368443-21-4	368443-22-5	368443-23-6	368443-24-7	368443-26-9
368443-30-5	368443-31-6	368443-32-7	368443-34-9	368443-35-0
368443-36-1	368443-39-4	368443-40-7	368443-41-8	368443-43-0
368443-44-1	368443-45-2	368443-46-3	368443-47-4	368443-48-5
368443-49-6	368443-67-8	368443-80-5	368443-86-1	368443-87-2
368443-88-3	368443-89-4	368443-96-3	368443-97-4	368443-99-6
368941-46-2	368941-47-3	368941-48-4	368941-49-5	368941-50-8
368941-51-9	368941-52-0	368941-53-1	368941-54-2	368941-55-3
368941-56-4	368941-57-5	368941-58-6	368941-59-7	368941-60-0
368941-61-1	368941-62-2	368941-63-3	368941-65-5	368941-66-6
368941-67-7	368941-68-8	368941-70-2	368941-71-3	368941-72-4
368941-73-5	368941-74-6	368941-75-7	368941-76-8	368941-77-9
368941-78-0	368941-79-1	368941-80-4	368941-81-5	368941-82-6
368941-83-7	368941-84-8	368941-85-9	368941-86-0	368941-88-2
368941-89-3	368941-90-6	368941-91-7	368941-92-8	368941-93-9
368941-94-0	368941-95-1	368941-96-2	368941-97-3	368941-98-4
368941-99-5	368942-00-1	368942-01-2	368942-02-3	368942-03-4

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)

IT	368942-04-5	368942-05-6	368942-07-8	368942-08-9	368942-09-0
	368942-10-3	368942-12-5	368942-13-6	368942-14-7	368942-15-8
	368942-16-9	368942-18-1	368942-19-2	368942-22-7	368942-23-8
	368942-24-9	368942-25-0	368942-26-1	368942-27-2	368942-28-3
	368942-29-4	368942-31-8	368942-32-9	368942-33-0	368942-34-1
	368942-35-2	368942-36-3	368942-38-5	368942-39-6	368942-40-9
	368942-42-1	368942-43-2	368942-44-3	368942-45-4	368942-47-6
	368942-48-7	368942-49-8	368942-50-1	368942-52-3	368942-53-4
	368942-54-5	368942-55-6	368942-56-7	368942-57-8	368942-58-9
	368942-59-0	368942-60-3	368942-61-4	368942-63-6	368942-64-7
	368942-65-8	368942-66-9	368942-67-0	368942-68-1	368942-69-2
	368942-70-5	368942-71-6	368942-73-8	368942-74-9	368942-75-0
	368942-76-1	368942-77-2	368942-79-4	368942-80-7	368942-82-9
	368942-83-0	368942-85-2	368942-86-3	368942-87-4	368942-88-5
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	368942-99-8	368943-00-4	368943-01-5	368943-02-6	368943-03-7
	368943-04-8	368943-05-9	368943-06-0	368943-07-1	368943-08-2
	368943-10-6	368943-11-7	368943-12-8	368943-13-9	368943-14-0
	368943-15-1	368943-16-2	368943-17-3	368943-18-4	368943-20-8
	368943-21-9	368943-22-0	368943-23-1	368943-24-2	368943-26-4

368943-28-6	368943-29-7	368943-32-2	368943-33-3	368943-34-4
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368943-45-7	368943-46-8	368943-47-9	368943-48-0	368943-49-1
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369414-65-3	369414-66-4	369414-67-5	369414-68-6	369414-69-7
369414-70-0	369414-71-1	369414-72-2	369414-73-3	369414-74-4

RL: PRP (Properties)

(unclaimed protein sequence; albumin fusion)

proteins with therapeutic proteins for improved shelf-life)

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	369414-95-9	369414-96-0	369414-97-1	369414-98-2	369414-99-3
	369415-00-9	369415-01-0	369415-02-1	369415-03-2	369415-04-3
	369415-05-4	369415-06-5	369415-07-6	369415-08-7	369415-09-8
	369415-10-1	369415-11-2	369415-12-3	369415-13-4	369415-14-5
	369415-15-6	369415-16-7	369415-17-8	369415-18-9	369415-19-0
	369415-20-3	369415-21-4	369415-22-5	369415-23-6	369415-24-7
	369415-25-8	369415-26-9	369415-27-0	369415-28-1	369415-29-2
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	369415-35-0	369415-36-1	369415-37-2	369415-38-3	369415-39-4
	369415-40-7	369415-41-8	369415-42-9	369415-43-0	369415-44-1
	369415-45-2	369415-46-3	369415-47-4	369415-48-5	369415-49-6
	369415-50-9	369415-51-0	369415-52-1	369415-53-2	369415-54-3
	369415-55-4	369415-56-5	369415-57-6	369415-58-7	369415-59-8
	369415-60-1	369631-86-7	369631-87-8	369631-88-9	369631-89-0
	369631-94-7	369632-03-1	369632-04-2	369632-05-3	369632-06-4
	369632-07-5	369632-08-6	369632-10-0	369632-11-1	369632-19-9
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	369632-74-6	369632-76-8	369632-86-0	369632-87-1	369632-88-2
	369632-89-3	369638-47-1	369638-48-2	369638-49-3	369638-50-6
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	369639-31-6	369639-35-0	369639-39-4	369639-50-9	369639-61-2
	369639-70-3	369639-77-0	369639-81-6	369639-92-9	369640-00-6

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 369643-26-5 369643-40-3 369644-05-3 369644-17-7 369644-35-9
 369644-48-4 369644-58-6 369644-62-2 369644-63-3 369644-64-4
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 369644-76-8 369644-77-9 369644-78-0 369644-79-1 370068-85-2

RL: PRP (Properties)

(unclaimed protein sequence; **albumin fusion**
proteins with therapeutic proteins for improved shelf-life)

IT	122024-47-9	131748-18-0	217893-85-1, GenBank A63622	222404-09-3
	251343-93-8	295783-43-6	328529-69-7	337459-95-7
	337459-96-8	337459-97-9	337459-98-0	337459-99-1
	337460-01-2	337460-02-3	337460-03-4	337460-04-5
	338949-18-1	339073-57-3	339073-58-4	339073-59-5
	339073-61-9	339073-62-0	339073-63-1	339079-35-5
	339079-37-7	339079-38-8	339079-39-9	339079-40-2
	339079-42-4	339079-43-5	339079-44-6	339079-45-7
	339079-47-9	339079-48-0	339148-16-2	339148-17-3
	339148-19-5	339148-20-8	339148-21-9	339148-22-0
	339148-24-2	339148-25-3	339148-26-4	339175-34-7
	339266-47-6	339266-48-7	339266-49-8	339266-50-1
	339266-53-4	339266-54-5	339266-55-6	339266-56-7
	339266-58-9	339266-59-0	339523-99-8	339524-00-4
	339524-02-6	339524-03-7	339524-04-8	339524-05-9
	339524-07-1	339524-08-2	339524-09-3	339524-10-6
	339524-80-0	339524-81-1	339524-82-2	339524-83-3
	339524-85-5	339524-86-6	339524-87-7	339524-88-8
	339524-90-2	339524-91-3	339524-92-4	339526-31-7
	339526-33-9	339526-34-0	339526-35-1	339526-36-2
	339526-38-4	339526-39-5	339526-40-8	339526-41-9
	339526-43-1	339526-44-2	339526-45-3	339526-46-4
	339526-48-6	339526-49-7	339527-59-2	339529-52-1
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	339529-61-2	339529-62-3	339529-64-5	339529-65-6
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	339540-80-6	339540-81-7	339540-82-8	339540-83-9
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	340003-40-9	340003-41-0	340003-42-1	340003-43-2
	340003-45-4	340003-46-5	340003-47-6	340003-48-7
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	340255-84-7	340256-43-1	340685-59-8	340773-66-2
	340963-11-3	352273-69-9	352273-70-2	353264-67-2
	367273-46-9	367273-47-0	367273-48-1	368941-64-4
	368941-87-1	368942-06-7	368942-11-4	368942-17-0
	368942-21-6	368942-30-7	368942-37-4	368942-41-0
	368942-51-2	368942-62-5	368942-72-7	368942-78-3
	368942-84-1	368943-09-3	368943-19-5	368943-25-3
	368943-30-0	368943-31-1	368943-58-2	368943-61-7
	369386-99-2	369387-03-1	369413-79-6	369414-52-8
	369593-28-2	369593-29-3	369593-30-6	369593-33-9
	369593-44-2	369593-45-3	369593-46-4	369638-87-9

RL: PRP (Properties)

(unclaimed sequence; **albumin fusion** proteins with
therapeutic proteins for improved shelf-life)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Delta Biotechnology Limited; EP 0322094 A1 1989 HCPLUS
- (2) Delta Biotechnology Limited; WO 9724445 A1 1997 HCPLUS
- (3) Human Genome Sciences Inc; WO 9734997 A1 1997 HCPLUS

=> => fil medline

FILE 'MEDLINE' ENTERED AT 14:41:41 ON 19 APR 2004

FILE LAST UPDATED: 17 APR 2004 (20040417/UP). FILE COVERS 1951 TO DATE.

On February 29, 2004, the 2004 MeSH terms were loaded. See HELP RLOAD for details. OLDMEDLINE now back to 1951.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2004 vocabulary. See <http://www.nlm.nih.gov/mesh/> and http://www.nlm.nih.gov/pubs/techbull/nd03/nd03_mesh.html for a description of changes.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 153 all

L53 ANSWER 1 OF 1 MEDLINE on STN
AN 2002687987 MEDLINE
DN PubMed ID: 12448011
TI Antitumor vaccination with HER-2-derived recombinant antigens.
AU Vidovic Damir; Graddis Thomas; Chen Feng; Slagle Paul; Diegel Michael; Stepan Lara; Laus Reiner
CS Dendreon Corporation, Seattle, WA, USA.. dvidovic@dendreon.com
SO International journal of cancer. Journal international du cancer, (2002 Dec 20) 102 (6) 660-4.
Journal code: 0042124. ISSN: 0020-7136.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200212
ED Entered STN: 20021214
Last Updated on STN: 20021217
Entered Medline: 20021212
AB Certain types of malignant tumors overexpress HER-2, a transmembrane glycoprotein of the class I receptor tyrosine kinase erbB family. To develop an effective HER-2 vaccine for the selective immunotherapy of these malignancies, we have genetically engineered fusion proteins containing portions of extra- and intracellular HER-2 domains. Activated dendritic cells (DC) cocultured with these novel antigens (Ag) could induce potent responses of Ag-specific T-cell lines in vitro and a protection against HER-2-expressing tumor in vivo. The protective capabilities of HER-2-derived fusion proteins correlated with the efficiency of their presentation to Ag-specific T-cell hybridomas. The most effective Ag contained GM-CSF, the presence of which facilitated their internalization by antigen-presenting cells (APC) in a receptor-mediated manner.
Copyright 2002 Wiley-Liss, Inc.
CT Check Tags: Human
Amino Acid Sequence
Animals
*Cancer Vaccines: IM, immunology
Granulocyte-Macrophage Colony-Stimulating Factor: IM, immunology
Mice
Mice, Inbred C57BL
Molecular Sequence Data
*Neoplasms, Experimental: TH, therapy
Ovalbumin: IM, immunology
*Peptide Fragments: IM, immunology

Protein Engineering

*Receptor, erbB-2: IM, immunology

Recombinant Fusion Proteins: IM, immunology

Vaccination

*Vaccines, Synthetic: IM, immunology

RN 83869-56-1 (Granulocyte-Macrophage Colony-Stimulating Factor);
9006-59-1 (Ovalbumin)CN 0 (Cancer Vaccines); 0 (Peptide Fragments); 0 (Recombinant Fusion
Proteins); 0 (Vaccines, Synthetic); EC 2.7.1.112 (Receptor, erbB-2)

=> => d his

(FILE 'HOME' ENTERED AT 14:21:54 ON 19 APR 2004)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 14:22:21 ON 19 APR 2004

E ROSEN C/AU

L1 27 S E3,E4

E ROSEN CRAIG/AU

L2 630 S E3-E5

E HASELTINE W/AU

L3 303 S E3,E4,E7-E10

E HUMAN GENOME/PA,CS

E HUMAN GENOME SCI/PA,CS

L4 985 S E4-E38

L5 159089 S ?ALBUMIN?

E ALBUMIN/CT

L6 753 S E3

L7 132 S E11

L8 70035 S E47

L9 1 S E48

E E47+ALL

L10 80984 S E2+NT

E E33+ALL

L11 275 S E3

L12 295 S E2

E ALBUMIN/CW

L13 1282 S E3,E8,E9

L14 159109 S L5-L13

L15 2654 S HER2 OR HER 2

E HER/CT

L16 15 S L14 AND L15

L17 1 S L16 AND BINDING PEPTIDE

L18 4 S L16 AND (FUSION OR FUSE OR FUSING OR CHIMER?)

L19 1 S L17 AND L18

E FUSION/CT

L20 5525 S E3

L21 3902 S E10+NT OR E11+NT

L22 12703 S E30+NT

E E30+ALL

L23 3855 S E3,E4

E E11+ALL

L24 76522 S E8+NT

E E8+ALL

L25 89216 S E2+NT

1 S L16 AND L20-L25

1 S L19,L26

L28 0 S L1-L4 AND L16

L29 0 S L1-L4 AND L15

L30 27 S L1-L4 AND L14

SEL DN AN 3 4 6 19-24

L31 9 S L30 AND E1-E27

L32 22 S L30 AND L20-L25
 L33 25 S L30 AND (FUSION OR FUSE OR FUSING OR CHIMER?)
 L34 9 S L32,L33 AND L31
 L35 10 S L27,L34
 L36 17 S L32,L33 NOT L35

FILE 'HCAPLUS' ENTERED AT 14:34:04 ON 19 APR 2004

FILE 'BIOSIS' ENTERED AT 14:34:39 ON 19 APR 2004

L37 118445 S L5
 L38 4536 S L15
 L39 2067 S ?HER2?
 L40 7 S L37 AND L38,L39

FILE 'MEDLINE' ENTERED AT 14:35:13 ON 19 APR 2004

L41 124442 S L5
 E ALBUMIN/CT
 E E12+ALL
 L42 84333 S E4+NT
 L43 135661 S L41,L42
 L44 3085 S L15 OR L39
 L45 11 S L43 AND L44
 E HER2/CT
 E E4+ALL
 E E2+ALL
 L46 1303 S E13+NT
 E E41+ALL
 L47 4745 S E37+NT
 L48 19 S L43 AND L46,L47
 L49 22 S L45,L48
 E FUSION PROTEIN/CT
 E E68+ALL
 L50 47927 S E2+NT
 E E2+ALL
 L51 166555 S E4+NT
 L52 5 S L49 AND L50,L51
 L53 1 S L52 AND RECOMB?/TI
 E ROSEN C/AU
 L54 236 S E3,E4
 E ROSEN CRAIG/AU
 E HASELTINE W/AU
 L55 252 S E3-E5
 L56 2 S L54,L55 AND L43

FILE 'MEDLINE' ENTERED AT 14:41:41 ON 19 APR 2004

FILE 'CANCERLIT' ENTERED AT 14:41:52 ON 19 APR 2004

L57 15736 S L5
 E ALBUMINS/CT
 E E3+ALL
 L58 358 S E19+NT
 L59 9221 S E4+NT
 L60 12 S E20+NT
 L61 18105 S L57-L60
 L62 2334 S L15 OR L39
 E ERBB/CT
 E E7+ALL
 E E2+ALL
 L63 1010 S E11+NT
 L64 122 S E37+NT
 L65 3928 S E39+NT
 L66 17 S L61 AND L62-L65
 E FUSION/CT

E FUSION PROTEINS/CT
E E60+ALL

L67 14951 S E2+NT
L68 1 S L66 AND L67

FILE 'WPIX' ENTERED AT 14:45:19 ON 19 APR 2004

L69 553 S L15/BIX OR L39/BIX
L70 261 S (ERBB2 OR ERBB 2)/BIX
L71 760 S L69,L70
L72 26 S L71 AND ?ALBUMIN?/BIX
L73 0 S ERBB/BIX AND ?ALBUMIN?/BIX NOT L72

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